DIGITAL COMPETENCE AMONG SCHOOL TEACHERS IN DIMAPUR DISTRICT

A Dissertation submitted on partial fulfillment of the requirement for the award of the degree of

Master of Philosophy (M. Phil) in Education

Submitted By

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DECLARATION

I, YANGERMENLA JAMIR, Roll No. 03/2020, M. Phil Research Scholar hereby declare that the dissertation entitled 'Digital Competence among School Teachers in Dimapur, District' is a bonafide record of independent research work done by me under the supervision of Dr. M. Rajendra Nath Babu, Assistant Professor Department of Teacher Education, Nagaland University, Kohima campus, Meriema and submitted to Nagaland University for the award of Master of Philosophy (M. Phil.) in Education. I declare that no chapter in this manuscript has been lifted either in whole or in part and incorporated in this dissertation work for any earlier work done by me or by others.

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CHAPTER-I

CONCEPTUAL BACKGROUND OF THE STUDY

1.1 INTRODUCTION

India has emerged as a global leader and a strong nation at the turn of this century. Education is the key to the task of nation building as well as to provide requisite knowledge and skills required for sustained growth of the economy and to ensure overall progress. The Indian education system recognizes the role of education in instilling the values of secularism, egalitarianism, respect for democratic traditions and civil liberties and quest for justice. It aims at creating citizens equipped with necessary knowledge, skills and values to build a inclusive, just and progressive society. The Report of the Education Commission Kothari, (1964-66) which was titled as 'Education and National Development', set a number of goals to be pursued," To bring about major improvement in the effectiveness of primary education; to introduce work experience as an integral element of general education; to vocationalise secondary education; to improve the quality of teachers at all levels and to provide teachers in sufficient strength; to liquidate illiteracy; to strengthen centres of advanced study and strive to attain, in some of our universities at least, higher international standards; to lay special emphasis on the combination of teaching and research; and to pay particular attention to education and research in agriculture and allied sciences." These assertions reiterated by the National Policy on Education – 1986 and the accompanying Programme of Action (modified further in 1992) have continued to guide all programmes in the education sector. (Ministry of Human Resource Development, (2009-2010)).

Education has always been accorded an honoured place in Indian society. The great leaders of the Indian freedom movement realized the fundamental role of education and throughout the nation's struggle for independence, stressed its unique significance for national development. Gandhiji formulated the scheme of Basic Education seeking to harmonize intellectual and manual work. This was a great step forward in making education directly relevant to the life of the people. Many other national leaders likewise made important contributions to national education before independence. Report of the education commission, (1970)

1.2 PROFILE OF NAGALAND

Nagaland was inaugurated as the Sixteenth State of the Indian Union on the 1st December 1963. The State of Nagaland covers an area of 16,579 sq.km and lies between 25,060 and 27,040 latitude North of Equator and between the longitudinal lines 9,30,200 and 9,50,150 East. The State is bounded by Manipur on the South, Assam on the North and West, Arunachal Pradesh on the North East and also shares a common international boundary with Myanmar on the East. Topographically, the state is mountainous and the altitude varies approximately between 194 metres and 3048 metres above sea level. Many villages stand at 1000 to 2000 metres high. Mount Saramati in Kiphire district is the highest peak in the State, measuring 3,840 metres above sea level. Other important mountains are Mount Japfü in Kohima district and Mount Pauna in Peren district, standing at the height of 3014 and 2841 metres respectively. (The Statistical Hand Book of Nagaland, (2017)).

According to the 2021 Census the population of Nagaland is 1,978,502. The density of the population is 119 per sq.km. The state have twelve district namely- Kohima, Mokokchung, Tuensang, Wokha, Zunheboto, Phek, Mon, Dimapur, Peren, Longleng and Kiphire and Noklak.

1.2.1 BACKGROUND OF THE GEOGRAPHICAL AREA CHOSEN: DIMAPUR DISTRICT

Dimapur is the most important commercial place of Nagaland and is considered as the gateway to the two North-Eastern States- Nagaland and Manipur. Dimapur is the 8th district of Nagaland established in December 1997 and lies between 25°48' and 260 00'North latitude and 93°30' and 93°54' East longitude. The district is bounded by Assam on its North and West, Kohima on the East and Peren District in the South. The district has a heterogeneous population with majority comprising of Naga tribes from all over the Nagaland. District industrial profile report, (2015) A large area of the District is in the plains with an average elevation of 260 metre above sea level excepting the Medziphema sub-division and a few villages of Niuland sub-division, which are located in the foothills. The District has a heterogeneous population with the majority comprising Naga tribes from all over Nagaland. Dimapur is the ancient capital of the Kachari tribe, whose rule existed before the 13th century AD. Reminiscences of the glory of this kingdom can be found in the ruins that are scattered in and around the town. As of 2021 census of India. Dimapur district has a population of 3,96,918.

1.3 SCHOOL EDUCATION IN INDIA

The post-independence era in India witnessed an increased emphasis on education as a means of national development. Educational reconstruction was reviewed by a number of committees and commissions including the University Education Commission (1948- 49) and the Secondary Education Commission (1952-53). The Education Commission (1964-66) was appointed to advise the Government of India (GoI) on the general principles and policies for the development of education at all stages and in all aspects. (Bapna & Sharma, 2005).

India, with over 1.5 million schools, over 8.7 million primary and secondary teachers and more than 260 million enrolments, it is home to the largest and most complex education system in the world. The Draft NEP (Ministry of Human Resource Development, 2019) is suggesting significant changes to the structure of schooling at different grades. (Anderson & Lightfoot, 2019).

The total enrolment in 2019-20 from primary to higher secondary levels of school education was a little over 25.09 Crore. Enrolment for boys was 13.01 Crore and that of the girls was 12.08 Crore. This was an increase by more than 26 lakh over the previous year 2018-19. The total number of teachers has also shown a healthy increase in 2019- 20 compared to 2018-19. The total number of teachers in 2019-20 was 96.87 lakh, an increase of more than 2.5 lakh over total teachers in 2018-19 (94.3 lakh). (Report on UDISE+ 2019-2020, (2020)).

1.3.1 SECONDARY EDUCATION IN INDIA

While primary education is basic enabling factor for participation, freedom, for leading life with dignity and overcoming basic deprivation, secondary education is the gateway for prosperity, for transforming the economy and establishing social justice in any country. It opens the world of work to the youth of the country and contributes to socio-economic development of the community. Secondary education is a crucial stage in the educational hierarchy as it prepares the students for higher education and also the world of work. Providing secondary education to all, both boys and girls, with a focus on quality education assumes greater meaning today, when we consider the emerging challenges in our society. For instance, rising levels of socioeconomic aspirations and also the democratic consciousness particularly among marginalized sections of population such as the Scheduled Castes, Scheduled Tribes, OBCs, religious and linguistic minorities and girls seek space in the secondary education system for greater access, participation and quality. The recent

significant development viz., Universal Elementary Education (UEE) being achieved through Sarva Shiksha Abhiyan (SSA) and also the impact of globalization and rapid growth of new technologies have led to reassessment of India's preparedness to generate required technical manpower, develop new knowledge and skills, and remain competitive at global level. The secondary and higher secondary education system has a key role to play in enabling the nation to move towards these objectives. (Ansari, 2020)

Educational opportunity at the secondary (and higher) level is a major instrument of social change and transformation. Facilities for technical and vocational education should be suitably diversified to cover a large number of fields, such as agriculture, industry, trade and commerce, medicine and public health, home management, arts and crafts, secretarial training, etc. (Report of the education commission, 1970)

1.3.2 SECONDARY EDUCATION IN NAGALAND

The progress of every society depends on how well the system of education is established. Realizing the role of education in shaping the future, the state Government has established secondary schools in almost all the village and urban habitations. In Nagaland, the Directorate of School Education is responsible for planning the development of education, opening new institutions, maintenance and administration of all institutions, qualitative improvement of education along with the subsequent modification and the execution of various state and central schemes and problems (Directorate of School Education, 1998). The secondary education is from class IX to X with official entry age of 14+ years. (Source: Directorate of School Education, Nagaland.)

The schools in Nagaland are majorly affiliated with the Nagaland Board of School Education (abbreviated as NBSE). The government is constantly focusing on making available for all. The Department of Higher Education looks after functioning of colleges and universities in the state. Education looks after the functioning of colleges and universities in the state. Many new higher education institutes have been proposed and are under construction. (Rashmi & Zeliang, 2017)

There are total 724 secondary schools in Nagaland state in which 292 schools are Government and 432 schools are private. (NBSE, 2021)

Table 1.1: Total number of schools in Nagaland: (district &category wise) 2021

Sl. No	District	Govt. Higher Secondary Schools	Govt. High Schools	Private Higher Secondary Schools	Recognized Private High Schools	Permitted Schools	Total	College(Govt. & Private)
1	Kohima	7	24	30	21	20	102	5
2	Mokokchung	5	37	11	13	6	72	-
3	Tuensang	5	24	2	5	17	53	1
4	Mon	5	18	5	2	32	62	-
5	Phek	4	35	6	12	4	61	-
6	Wokha	3	21	4	7	13	48	1
7	Zunheboto	3	22	5	14	13	57	-
8	Dimapur	7	23	50	14	87	181	8
9	Kiphre	2	15	1	2	10	30	-
10	Longleng	1	13	-	3	5	22	-
11	Peren	2	16	7	3	8	36	-
	Total	44	248	121	96	215	724	15

Source: https://nbsenl.edu.in/storage/cms/general-info/3.pdf

1.4 BACKGROUND OF DIGITAL EDUCATION

(Jha & Shenoy, 2016) Printing press changed the world of education forever. Six centuries later we are undergoing another transformation and this time everything is going digital. Leading this Second wave of technology backed empowerment; Educomp has taken education from the paper to the pixel. As a pioneer in bringing digital education to the Indian classroom, Educomp has brought about a radical change in the traditional ways of teaching with its exemplary innovations in the digital space. The first of its kind in the world, it offers a bouquet of education solutions that comprehensively assist schools to leap frog towards an enhanced paradigm of teaching and learning. The quality of education and increasing learning outcomes are the offshoot of amalgamation of never before features, allowing the schools to integrate, nourish, create and enhance a 360 degree relationship with all stakeholders while keeping the student at the centre of the learning experience.

Here‘s a bouquet of product offerings for Schools to grab the big Leap:

(i) Educomp Smartclass: Educomp Smartclass is the industry pioneer in the use of rich multimedia content as a teaching tool inside the classrooms in India. It‘s a revolutionary in-classroom technology leveraging a large repository of digital content across virtually all subjects from kindergarten to grade 12. Educomp Smartclass has been endorsed by detailed testing from Dun & Bradstreet.

(ii) English Mentor: English mentor is an English Language Lab which has been meticulously designed keeping in mind the education requirements of English language learners from grade one to ten, such that the understanding of the language and its fundamentals get imbibed in an engrossing scenario. It offers a self-paced environment that allows users to correct mistakes, practice correct pronunciation and move on towards coaching in public speaking with confidence.

(iii) Educomp Smartclass 3D Lab: With 3D lab complex Concepts become easier to comprehend. When abstract concepts come alive, students can almost feel that they are a part of the subject itself.

(iv) Educomp Insight: Insight' is a scientifically designed assessment system that evaluates the academic competency of the student. Insight assesses students on 10 skills and 35 sub skills making it one of the most comprehensive assessment and counselling systems.

(v) Educomp Smart School: A first of its kind comprehensive School Solutions through which schools enhance the quality of learning providing path-breaking features. It allows schools to create, integrate, nourish and enhance a 360 degree relationship with all the stakeholders while keeping the student at the centre of the learning experience.

(vi) League India: The vision for league India is to build a vast fraternity of new age schools, recognized and respected for their distinct positioning and adoption of well researched best practices that encompass the League India institutions.

(vii) UniClass: Educomp UniClass is a teaching and learning system where a user can access a large repository of rich multimedia content mapped to curriculum. UniClass is available for Nursery to Grade twelve. The UniClass device is similar to a set-top box and can be connected to a television, a projector or any other display appliance. It gives students an engaging and interesting way to learn. Easy to set up and maintain, Educomp UniClass is a simple and cost effective way for schools on a budget and users who can afford their personal content library.

(viii) Role of Cloud Learning: India's IT firms are working with academic institutions and setting up in-house institutes to groom the right talent as these companies move to Social media, Mobility, Analytics and Cloud (SMAC) technologies.

1.4.1 DIGITALIZATION OF EDUCATION

This digital revolution seems to be highly necessary in developing countries like India where students are abundant and teachers are relatively scarce. Being of rapid technological change, the Indian education system is also facing many new challenges and providing various new educational opportunities. New millennium experiences the phenomena of liberalization, privatization, globalization and easy access expediting the emergence of digitalization of education, which is very important for Indian education system and there is a swift in setting the preferential goals of education. This advancement of technology has brought us to an information society with no boundaries, which could be significantly marked by knowledge explosion and easily accessible information. These digital technologies have changed the style of functioning of the educational system and its governance with the help of digital data, its storage, retrieval, manipulation and transmission. It has emerged as a cost-effective and time saving tool. To accomplish growing educational demands, we must adopt the best possible methods to include digital technology in our education to transform our educational institutions into potential learning centres to cater the growing needs of global learners. With the progression of digital technology in education, there has been a paradigm shift in education system throughout the world. It is proceeding from traditional method of teacher centred learning to modern methods of learner centred teaching. Today, students learn facts, skills, knowledge and attitude from computer, internet and social media. Technology has created a significant difference in various processes related to education. Digitalization of education includes use of digital tools and technologies for educational administration, teaching learning process, evaluation, research and extension activities. Teaching and learning trough digital technology is playing an increasingly vital role in assisting teachers meet many of the expectations of today's technological world by providing innovative teaching tools, access to information, global collaboration opportunities, and alternative ways to professional development consecutively results in the enhancement of educational development of many nations. Demand of skilled teachers who could prepare students to lead a successful life in a technology-infused, knowledge-based society is rising worldwide. Technology offers teachers the keys to unlock a huge world of opportunities available to meet this demand of education system across the world. One of the most acceptable ways of

learning being surfaced now days is learning through digital technology. Learning through technology is hi-tech, substantive, content focused and caters the need of individual differences providing personalize learning experiences. Learning through digital technologies provides an opportunity to those who could not attend the regular classes and offers lifelong learning e-learning, blended learning, Massive Open Online Courses (MOOCs), virtual universities, Open Educational Resources (OERs), blogs, online platforms for sharing knowledge and resources, discussion forums, interactive boards, videoconferencing, webinars, smart classrooms, cloud computing, online research tools, Web Based Learning (WBL) are some of the avenues opened by the technology in the field of education. (Shipra, 2020)

1.4.2 MINISTRY OF HUMAN RESOURCES DEVELOPMENT (MHRD) INITIATIVES

To address the challenge of remote learning, MHRD has undertaken several initiatives to assist students, scholars, teachers and lifelong learners in their pursuit of education. These initiatives cover educational requirements, ranging from learners in schools to postgraduates. A comprehensive initiative called PM eVidya was announced on May 17, 2020, which aims to unify all efforts related to digital/online/on-air education to enable equitable multi-mode access to education. It is envisaged that it will benefit nearly 25 crore school going children across the country. A summary of these initiatives is given below:

(i) DIKSHA (Digital infrastructure for knowledge sharing): DIKSHA is the national platform for school education available for all states and the central government for grades 1 to 12, and was launched in September 2017. DIKSHA can be accessed through a web portal and mobile application. DIKSHA provides access to a large number of curriculum linked e-content through several use cases and solutions such as QR coded Energized Textbooks (ETBs), courses for teachers, quizzes and others. As of July 2020, it is estimated that over 60crore ETBs are being printed this year in India by 35 states and Union Territories, with more than 30 crore content plays and 200 crore page hits already on DIKSHA. DIKSHA is the 'one nation; one digital platform' for school education in India.

(ii) Access through TV channels- Swayam Prabha TV Channels: Swayam Prabha DTH channels are meant to support and reach those who do not have access to the internet. 32 channels are devoted to telecast high quality educational programmes by the MHRD. Channels are earmarked for school education and higher education separately. Provision is made for telecast of live interactive sessions on these channels with experts from home

through Skype. The Department of School Education and Literacy also tied up with private DTH operators like Tata Sky & Airtel to air educational video content to enhance the reach of these channels.

(iii) For Open schools and Pre Service Education: Online MOOC courses relating to NIOS (grades 9 to 12 of open schooling) are uploaded on SWAYAM portal; around 92 courses have started and 1.5 crore students are enrolled. Students and teachers can access all the course modules - text, videos and assessment questions etc. through SWAYAM.

(iv) Radio broadcasting is being used for children in remote areas who are not online (especially for grades 1 to 5): The broadcasts focus on activity-based-learning. 289 Community Radio Stations have also been used to broadcast content for NIOS for grades 9 to 12. A Podcast called Shiksha Vani of the Central Board for Secondary Education (CBSE) is being effectively used by learners of grades 9 to12. Shiksha Vani contains over 430 pieces of audio content for all subjects of grades 1 to 12

(v) For the differently abled: One DTH channel is being operated specifically for hearing impaired students in sign language. For visually and hearing impaired students, study material has been developed in Digitally Accessible Information System (DAISY) and in sign language; both are available on NIOS website/ YouTube.

(vi) E Textbooks: The e-textbooks can be accessed using e-Pathshala web portal and mobile app (Android, iOS, Windows), by students, teachers, teacher educators and parents. More than 600 digital books including 377 e-textbooks (grades 1 to 12) and 3,500 pieces of audio and video content of NCERT are available in the public domain in various languages (Hindi, English, Sanskrit and Urdu).

(vii) **National Repository of Open Educational Resources (NROER):** NROER is an open storehouse of e-content for students, teachers, teacher educators and parents. Nearly 17,500 pieces of e-content of NCERT and other collaborative partners are available for all grades for various school subjects. E-content is also available on NCERT's official YouTube channel. (India Report Digital Education, 2020)

1.4.3 CHALLENGES IN FRONT OF TEACHERS IN DIGITAL AGE

In this digital age, teachers are confronting with new challenges every day in respect of students, their individual needs, new hardwares and softwares and own developmental needs.

(i) Diverse Students: Nothing has changed more than students themselves in this technological era in the last 10-20 years. Technology has facilitated in multi fold ways to the students. Students have now got access to multiple knowledge via internet on their laptops, mobile phones and Tablets etc. A student is also curious by nature. As a result of that, students have become-

I. More knowledgeable
II. More Interrogative
III. More Competitive
IV. And more demanding from their teachers.

It has changed the way in which a student understands any concept. An average teacher who himself is not tech savvy, can't get recognition and respect from these kinds of students. Moreover due to Globalization of Education in the last decade has put a greater impact on the type of students available in the classrooms. Now we have more diverse students in the classes with diversity reflecting in their family backgrounds, economic conditions, physical conditions, traditions, cultures, Languages and ways of doing things etc. This diversity has gone prominent with RTE Act, 2009 where all schools have been directed to have inclusive classroom settings which have made this diversity more prominent in the class rooms. A teacher's role in such a scenario has become utmost important and stringent.

(ii) Pupil- Teacher ratio: In India and most of the other countries of the World, Government bodies have fixed pupil teacher ratio to near about 40. But there are institutions that have more than 40 students sitting in one class making the teaching learning situation even more nagging for the teacher. In India, a survey has been conducted by IBM at various levels to record the actual no. of students per teacher present in the classrooms. It has been found that the current ratio for Primary, Secondary and Higher secondary Education stands at 1:43, 1:34 and 1:34 respectively where 1.4% of the Primary schools have no teachers while 19% have single teacher and 43% have two teachers. 0.9% of the primary schools have a teacher-student ratio of worse than 1:100 and another 26% have a ratio of worse than 1:60.

(iii) Digital natives: A student these days are never alone while learning. They are always 'on'. They always have their digital natives around them on facebook, twitter, Instagram, YouTube, WeChat etc. with the help of whole lot of applications (apps) such as iPads, mobile phones and tablets etc. So they don't even care what teacher is teaching in the class if it is no

way in addition to what is available on the internet. Facilitating digitalization in classes also does not guarantee that children will use it only for classroom lectures.

(iv) Knowledge Based Job Market: Knowledge Based Job Market is becoming demanding day by day. While appointing personnel, their demands have not just got limited to good manual skills but good technological skills as well. It is a real tough task for a teacher to prepare students for the oneous professional needs and rigorous job market which is dynamic in nature. New technologies, methods and processes are entering in every field at a much more faster rate than anyone could train. Curriculum in schools, colleges and universities are not changing in that speed to keep pace with changing technology. (Sharma, 2017)

1.5 Digital Competence:

Digital competence involves the confident and critical use of Information Society Technology (IST) for work, leisure and communication. It is underpinned by basic skills in ICT: the use of computers to retrieve, assess, store, produce, present and exchange information, and to communicate and participate in collaborative networks via the Internet Digital competence requires a sound understanding and knowledge of the nature, role and opportunities of IST in everyday contexts: in personal and social life as well as at work. This includes main computer applications such as word processing, spreadsheets, databases, information storage and management, and an understanding of the opportunities and potential risks of the Internet and communication via electronic media (e-mail, network tools) for work, leisure, information sharing and collaborative networking, learning and research. Individuals should also understand how IST can support creativity and innovation, and be aware of issues around the validity and reliability of information available and of the legal and ethical principles involved in the interactive use of IST. Skills needed include the ability to search, collect and process information and use it in a critical and systematic way, assessing relevance and distinguishing the real from the virtual while recognising the links. Individuals should have skills to use tools to produce, present and understand complex information and the ability to access, search and use internet-based services. Individuals should also be able use IST to support critical thinking, creativity, and innovation. Use of IST requires a critical and reflective attitude towards available information and a responsible use of the interactive media. An interest in engaging in communities and networks for cultural, social and/or professional purposes also supports this competence. (Council, 2006).

1.5.1THE DIGITAL COMPETENCE FRAMEWORK 2.0

The digComp 2.0 identifies the key components of digital competence in 5 areas which can be summarised as below:

i) Information and data literacy: To articulate information needs, to locate and retrieve digital data, information and content. To judge the relevance of the source and its content. To store, manage, and organise digital data, information and content

(ii) Communication and Collaboration: To interact, communicate and collaborate though digital technologies while being aware of cultural and generational diversity. To participate in society through public and private digital services and participatory citizenship. To manage one's digital identity and reputation.

(iii) Digital content creation: To create and edit digital content to improve and integrate information and content into an existing body of knowledge while understanding how copyright and licenses are to be applied. To know how to give understandable instructions for a computer system.

(iv) Safety: To protect devices, content, personal data and privacy in digital environments. To protect physical and psychological health, and to be aware of digital technologies for social well- being and social inclusion. To be aware of the environmental impact of digital technologies and their use.

(v) Problem solving: To identify needs and problems, and to resolve conceptual problems and problem situations in digital environments. To use digital tools to innovate processes and products. To keep up-to-date with the digital evolution.

1.5.2 IMPORTANCE OF DIGITAL COMPETENCE

i) Digital competence is one component of being a digital citizen a person who is responsible for how we utilize technology to interact with the world around them

ii) Digital Technology allows people to interact and communicate with family and friends on a regular basis due to the busy constraints of today's world.

iii) Not only do white collar jobs required digital literacy in the use of media to present record and analyse data but so do blue collar jobs, who are looking for way to increase productivity and analyse market trends along with increased jobs safety. When it comes to digital literacy for smart working environment Indian economic sector still lags behind. The fierce global

competition for jobs in Information technology sector is making Digital competence a must for employment and grabbing international assignments.

iv)Abundant information on any subject is available on such sources as Youtube, Facebook, Wikipedia, and Google. New ways of teaching may include development of new information and communication technologies such as a cable and satellite transmissions, audio and video conferencing, PC (Personal Computer) software and CD ROM and in particular the internet sources.

1.6 RATIONALE OF THE STUDY

In the digital era, the teacher plays a key role not as a fellow-learner, but also as a link to the knowledge community, or state of the art in that discipline. Hence in additions to general teaching skills, some more skills are needed to be embibed in a teacher to play his role effectively as a Facilitator of learning. Technology nowadays has entered into every walk of life. In this era of technology, the digital revolution has transformed almost everything from our work at our organizations to our daily routines. It is transforming the way children and young people play, access information, communicate with each other, learn, relearn and unlearn. But now this revolution has profoundly entered in the Education sector and that is also at all levels i.e. school level, College level and University level. Now we talk of use of Interactive smart boards, hybrid or blended learning, flipped classrooms and digital libraries etc. during teaching learning processes. Due to this, most of the teaching and learning processes in the classrooms these days are changing from autocratic style to democratic or participatory style where learners play an active role. As society has become more and more digitized, the demand for digitally competent teachers has evolved, imposing the need for new approaches when it comes to integration of technology in education.

As stated by (Prensky, 2001) education is one of the largest problems facing by digital world because our educators are digital immigrants whereas our students are digital natives; this digital generation gap has created a digital divide between teachers and learners. The teachers are struggling to teach a generation that has an increased exposure to technology, which has altered their thinking style, way of working along with the way of interaction and responding to digital devices. Therefore, to meet the specific learning needs of this generation, teachers need to acquire skills and abilities to integrate technology not only in the classroom not but also in their routine life. Although, it is quite a difficult task for digital immigrants' teachers but it is equally important for them to understand the utility of these digital tools in today's digital age of information and knowledge explosion. Since exposure to

technology is still in its nascent stage in India. Teachers working in Indian education system have to manage the technologies and facilities available for effective teaching such as Virtual laboratories, MOOC, e-learning resources from NPTEL, INFLIBNET, SWAYAM and other open educational resources, mobile education, etc.

Teachers being the pivot in the teaching- learning process, requires the knowledge of Information and Communication Technology (ICT) and skills to use it in teaching and learning in today's classroom. Today the role of teachers has changed and continues to change from being an instructor to becoming a constructor, facilitator & creator of learning environment along with this they need to think critically & creatively to analyse available information along with their own experience. To accomplish this, they also need to be digitally competent which assist them to learn about, communicate with, understand one another, recognize & handle emotions, influence their societal values, improve interpersonal relationships and working in collaboration with others. It seems that the issue of digital competence, so far, has not been very relevant in research concerning higher secondary school teachers. Thus, the researcher has undertaken the present study to assess the level of Digital Competence required for school teachers.

1.7 STATEMENT OF THE PROBLEM

The present study is designed to study the Digital Competence among School Teachers.

The present study is entitled **"DIGITAL COMPETENCE AMONG SCHOOL TEACHERS IN DIMAPUR DISTRICT"**

1.8 OPERATIONAL DEFINITIONS OF THE KEY TERMS

The operational definition of the term used in stating the problems are as follows:

(i) Digital Competence: In the present study, Digital competencies the competence of teachers in using digital tools and techniques for enhancing the effectiveness of their teaching learning processes.

(ii) School teacher: A teacher is someone who teaches in a school. In the present study the teacher refers to individuals working/ teaching in government and private schools in Dimapur.

(iii) Gender: Gender in the present study refers to the male and female teachers working in Government as well as Private schools in Dimapur, District.

(iv) Management: Management in the present study refers to the Government and Private Schools selected for the present study.

(v) Age: It refers to the age of the school teachers selected in the present study.

(vi) Educational qualifications: It refers to the successful completion of an education program of the teacher in the present study.

(vii) Work experience: In the present study work experience refers to the years of teaching experience in schools.

(viii) Subject taught: In the present study subject taught refers to the subject which the teacher teaches in the school.

1.9 VARIABLES OF THE STUDY

Following are the dependent and independent variable for the present study:

Dependent variable: Digital Competence

Independent variable: Gender, Management, Age, Educational Qualification, Work Experience, Subject Taught

1.10. OBJECTIVES OF THE STUDY

1. To evaluate the level of digital competence scores among school teachers of Dimapur District.
2. To study the difference of digital competence scores among school teachers with respect to Gender, Management, Different Age Groups, Educational Qualification, Work Experience.

1.11 HYPOTHESES OF THE STUDY

1. There is no significant difference in the level of digital competence scores among school teachers in Dimapur.
2. There is no significant difference between male and female school teachers towards digital competence scores.
3. There is no significant difference between government and private school teachers towards digital competence scores.
4. There is no significant difference in digital competence scores among school teachers with reference to different age groups.

5. There is no significant difference in digital competence scores among school teachers in Dimapur with reference to educational qualification.
6. There is no significant difference in digital competence scores among school teachers in Dimapur with reference to work experience.
7. There is no significant difference in digital competence scores among school teachers in Dimapur with reference to subject taught.

1.12 DELIMITATIONS

1. The area of study is delimited to Dimapur District only.
2. The study has been delimited only to high schools and higher secondary schools.
3. The study has been delimited to only secondary and higher secondary teachers of Dimapur District.
4. To test the level of significance the investigator has delimited to 0.5 level of significance only.

1.13 ORGANIZATION OF CHAPTERS

The current chapter provides a brief introduction into what is digital competence. Digital initiatives by MHRD, rationale of the study, objectives of the study, hypothesis and delimitation of the study has also been included in the present chapter.

Chapter II reviews literature related to the area of study. This chapter sheds light on the different researches conducted on the different aspects related with Digital Competence among school teachers.

Chapter III provides the research design and the methods that were used to collect, present and analyze the data. The population and the sample used in the research will also be described along with the criteria used for sampling. This chapter also delineates the data-collection instruments.

Chapter IV is devoted to analysis and interpretation of the data with a view to address the research objectives.

The final chapter, Chapter V highlights the summary, major findings of the study and discussion, along with the educational implications of the findings .This chapter also contains suggestions for further research and conclusion.

CHAPTER II

REVIEW OF RELATED LITERATURE

2.1 INTRODUCTION

Review of related literature is one of the most important components of any research work. It is a careful survey of research journals, books, dissertations, theses and other sources which help the investigator in gaining knowledge on the work that others have done. A literature review is an account of previously published material by experts and researchers in a particular area of interest. The literature review gives the author an opportunity to reference previously research publications to provide strengths and weaknesses of the research. The literature review should provide the author with a base knowledge from which they will build upon with knowledge that they provide to the area of interest.

In this chapter the investigator has made an attempt to review some of the studies which are closely related to the study undertaken. The existing researches which are directly or indirectly related to the present study are divided into the following sections:

a) Studies conducted in India

ii) Studies conducted Abroad

2.2 THE REVIEW OF RELATED LITERATURE OF STUDIES CONDUCTED IN INDIA

The investigator has made an attempt to bring together the studies done in India related to the problem undertaken which are as follows:

Tabusum et al. (2014) investigated the digital literacy awareness among arts and science college students in Tiruvallur district of Tamil Nadu. Findings of the study revealed that the students under study were digitally literate and majority of them were average in computer literacy level. Although majority of male and female graduate students use internet, search engines, e-mail, multimedia and simulations / animations and can create, copy and edit a document in computer. However, significant low usage was reported on certain digital resources.

Kabir (2018) conducted a study on digital literacy among research scholars of social science and arts faculties in university of kerala: a comparative study. The findings revealed that more social science scholars are digitally literate than arts. Nearly all respondents are familiar with open access e-books/e-journals. Only a least number of respondents used audio and

video sharing websites for professional activities. Email and internet browsing were the most preferred services used every day by lion's share of respondents in social science and arts faculty (95.12%). Majority of the social science research scholars used laptop for internet access, but smart phone by research scholars in arts.

Pratap & Singh (2018) studied on digital literacy skills among students and research scholars of the law school. The results show that majority of the respondents were male designated as LLB between 20-24 age groups. 78(86.67%) greater part of respondents use digital resources daily. It is also clear that highest numbers of 58(49.57%) respondents are using digital resources to update their subject knowledge in the field. It was also found that they were using digital resources to update their subject knowledge.

Chatwal (2019) describe the digitalization of the education system in India. The paper describes that digital class transforms the education process, and cause universal interactivity between teacher and learners as well as among learners themselves, all around the world. This global interactivity causes mutual understanding between teacher and learner, and among the learners. It also causes more adjustability of materials and methods, which are used in the process of education. The best part of digitalization of education in the 21st century is that it is combined with the aspects of both; classroom learning and online learning methods. This way the digitization of education industry in the 21st century proves to be a boon to our society.

Rajeswaran (2019) conducted a study on Lack Of Digital Competence: The Hump In A University - English For Specific Purpose – Classroom It was thus found net generation students are very enthusiastic about Mobile learning; but the teachers are still trying to adapt the mobile technology in language classes. The study identified an imbalance in the force of technology intrusion and the ability of digital immigrant teachers to meet the technology challenges. It concluded the digital immigrant teachers with their vast knowledge and willing to learn attitude can be helped to face the challenge, through Faculty Development Programs (FDP) and workshops.

2.3 THE REVIEW OF RELATED LITERATURE OF STUDIES CONDUCTED ABROAD

The investigator found various studies that have been done abroad. The reviews of those works are cited below:

Engen et al. (2014) conducted a study to explore the level of digital competence among digital natives. The main objective of the study was to determine and discuss the levels of digital competence of students entering teacher education studies. The findings of the study revealed that student teachers perceived digital competence was good with regard to the topics addressed in the study. However, when their perceived competence was cross-checked in the light of their answers about the efficient use of technology, a mismatch was found between perceived competence and their actual levels of efficiency in using technology.

Røkenes & Krumsvik (2014) the study "Development of Student Teachers' Digital Competence in Teacher Education**"** results depicts categorization strategies, eight approaches were identified: collaboration, metacognition, blending, modelling, authentic learning, student-active learning, assessment, and bridging theory/practice gap. The approaches consider ways that teacher education programs promote student teachers' digital competence, and educate them in professionally using ICT for their future use in school and classroom teaching in secondary education.

Instefjord & Munthe (2017) on the educating digitally competent teachers: A study of integration of professional digital competence in teacher education study shows that there are weak positive correlations between positive management, management's development support, and teacher educators' digital competence, but stronger positive correlations between teacher educators' self-reported efficacy and digital competence. Results are discussed in relation to teacher education's role in qualifying for professional work in digital classrooms.

Khateeb (2017) the current research revealed that the majority of teachers are not adequately digitally competent according to the level and standards required to enable them to be good digital teachers of the twenty-first century.

Benali, Kaddouri, & Azzimani (2018) "Digital competence of Moroccan teachers of English", the findings show that teachers with a higher level of digital teaching confidence and those with more years of teaching experience are more likely to score higher further confirms the soundness of the tool. It also shows a high level of alignment with teachers' experience and confidence, can provide additional insights and be informative to users can also be confirmed: Not only is there a high variation of scores and competence levels across the group of teachers with similar experience and confidence levels, but there is also a high variation of competence levels across the 22 DigCompEdu competences.

Kuzminska et al. (2018) revealed on their study that the level of competency of professional usage of IT is much higher for students than for teachers. The level of competencies of the respondents who has restricted access (or no access at all) to the resources with the literature is far lower, than the level of those respondents who has full access to such resources. There were defined no difference on gender, age and availability of technical means.

Kuzminska et al. (2018) the results of a survey "Digital Competency of the Students and Teachers in Ukraine: Measurement, Analysis, Development Prospects "revealed the teachers have higher level of IT usage for performing educational tasks. The level of competencies of the respondents who has restricted access (or no access at all) to the resources with the literature is far lower, than the level of those respondents who has full access to such resources. There were defined no difference on gender, age and availability of technical means.

Francia et al. (2019) conducted a study on Digital Competences and Education stated that university urgently needs academic, organizational, humanistic, and scientific transformations, otherwise, it will not be able to face the new perspectives of the flourishing digital landscape. The way in which the new digital education is approached will bring consequences for that society in which everything related to the development and application of new technologies is underestimated. It is urgently required to find ways to generate promotion, valuation, and rewards aimed at achieving digital competences that can lead to a more inclusive and socially unified society.

Silva, Usar, & -Cantabrana (2019) studied on the topic Teacher's digital competence among final year Pedagogy students in Chile and Uruguay to find out teacher's Digital Competence in relation to gender and educational level. Results showed a mostly basic level for the four dimensions of the teacher's Digital Competence in the sample. Regarding the relationship between the variables and the teacher's Digital Competence, the planning, organization and management of spaces and technological resources' dimension is the only one showing significant differences. In particular, male students achieved a higher teacher's Digital Competence level compared with female students. Furthermore, the proportion of Primary Education students with a low teacher's Digital Competence level was significantly higher than other students.

Falloon (2020) conducted a study, from digital literacy to digital competence: the teacher digital competency (TDC) framework. It presents a conceptual framework introducing an expanded view of teacher digital competence (TDC). It moves beyond prevailing technical

and literacies conceptualisations, arguing for more holistic and broader-based understandings that recognise the increasingly complex knowledge and skills young people need to function ethically, safely and productively in diverse, digitally-mediated environments. The implications of the framework are discussed, with specific reference to its interdisciplinary nature and the requirement of all faculty to engage purposefully and deliberately in delivering its objectives. It further suggests that implementing the framework is the responsibility of all faculty, who need to have consistent and well-developed knowledge of its intent, scope and content.

Melashet al. (2020) investigated on Modernization of Education Programs and Formation of Digital Competences of Future Primary School Teachers revealed that general digital competences are consistent with the context of the education system. Competence to integrate technologies into teaching practice focuses on the context of integration, preparing future teachers for the opportunity to use technology in future teaching of pupils, critically assess the use and teach children, using digital devices in education process.

Quaicoe & Pata (2020) conducted a study on teachers' digital literacy and digital activity as digital divide components among basic schools in Ghana the results were found that relatively small numbers of schools were engaged in active teacher digital activities (TDA), mostly once a month or in a fewer cases, once a week. Most schools barely had active TDA and almost none had regularly digital activities integrated into the teaching and learning environment. Most schools teachers claimed an above average level of Teacher Digital Literacy; however, more than 50% of the schools are digitally proactive. Suggesting that teachers appear not to be actually using ICT tools and digital resources for professional practice. The cluster of schools differentiated by the extent of digital activities (TDA) were performed weekly. The study reveals several critical issues of teachers' digital empowerment for technology in Ghana's basic schools, of which school-based management (SBM) governance to be adapted to address them.

Ballester, Domínguez, & Rodríguez (2021) studied on the topic Secondary School Teachers Self-Perception of Digital Teaching Competence in Spain Following COVID-19 Confinement. From the results, teachers consider themselves to have an upper intermediate level of digital teaching competence, although there are still shortcomings that need to be addressed in order to improve this level of competence, and its true integration in the teaching–learning process.

García & Lozano (2021) conducted a study on the ethical dimension of digital competence in teacher training the research results indicated that, although digital competences were present in most of the assessed plans (78%), through a subject related to the learning and use of ICT in education, only 26.1% of the teaching guides incorporated the ethical dimension of this subject. This leads us to conclude that future teachers currently receive little training in ethics regarding the development of digital competences.

Kožuh, Maksimović, & Zajić (2021) studied on Fourth Industrial Revolution and digital competences of teachers, the research results show that science and technology teachers apply digital tools while teaching more frequently than the teachers of social sciences and humanities. The research implies that a strategic approach to Serbian teachers' digital education is necessary even during their undergraduate studies by introducing digital technology courses and subjects in the conventional academic curricula.

The researcher has identified research gaps that there are very few studies conducted on Digital Competency among teachers in India and Nagaland in particular. Since this topic digital competency is the need of the hour due to advancement of digitalisation therefore researches should be conducted extensively to assess the students as well as teachers digital competency in all the levels of education be it primary, secondary, hr. secondary level, college level or university level.

CHAPTER III

METHODOLOGY

3.1 INTRODUCTION

This chapter deals with the methods and procedure used for accomplishing this study. It gives in detail the methods and procedures that were followed in order to meet the objectives of this research and arrive at a concluding point.

Research Methodology is a way to systematically and scientifically solve the problem. It is the whole process- from problem to solution and has many dimensions. (Begum & Bhargava, Innovations in Modern Educational Research, 2008)

Methodology is a systematic approach for completing any research work. The effectiveness of any research depends mainly on the kind of methodology, design and procedure followed in executing the study. The present study is undertaken to investigate the study of Digital Competence among School Teachers in Dimapur District.

3.2 RESEARCH DESIGN

An extremely important feature of research is the use of appropriate methods. It is a logical and systematic plan prepared for directing a research study. Research design involves systematic, controlled, valid and rigorous exploration and description of what is not known and establishment of associations and causation that permit the accurate prediction of outcomes under a given set of conditions. For any investigation, the selection of an appropriate research design is crucial in enabling you to arrive at valid findings, comparisons and conclusions. (Kumar, 2011) It is the plan, structure and strategy of investigation conceived so as to obtain answers to research questions. A research design program guides the investigator in the process of collecting, analyzing and interpreting observations. It thus provides a systematic plan of procedure for the researcher to follow. (Krishnaswami & Ranganatham, 2016)

3.2.1 METHOD OF STUDY

Descriptive research is aimed at casting light on current issues or problems through a process of data collection that enables them to describe the situation more completely than was possible without employing this method. In its popular format, descriptive research is used to describe characteristics and/or behaviour of sample population.Descriptive survey method will be used to carry out the proposed study.

3.2.2 POPULATION

In research population and sample have special importance especially in quantitative research which is mainly concerned with establishing the cause and effect relationship of variables for the establishment of facts or realities. The primary purpose of research is to arrive at generalisations and applications to the entire population in which the study is intended. (Mcmillan, 1996) defined population is a group of elements or cases, whether individuals, objects or events, that conform to specific criteria and to which we intend to generalise the results of research. This group is also referred to as target population or universe. In research, generally the whole or universe or the totality can never be studied within a very short period of time. Therefore, for systematic and scientific study, samples are collected according to the demands and necessity of research problems undertaken for study.

The present study intends to find out the Digital Competence among School Teachers in Dimapur District. Hence, all teachers working in high schools and higher secondary schools of both government and private schools in Dimapur District will be the target population of the present study.

3.2.3 SAMPLING

Sampling is a process of selecting a number of participants for a study in such a way that they represent the larger group from which they are selected. It simply means to take a sample or samples from the population or universe. (Pandya, 2010)

"In the social sciences, it is not possible to collect data from every respondent relevant to our study but only from some fractional part of the respondents. The process of selecting the fractional part is called Sampling." - David S. (FoxSharma, 2013)

Proper sampling is an essential requirement in most of the descriptive survey researches as it is quite difficult and almost impossible to deal with the entire population in any given situation.

3.2.4 SAMPLE

A sample is a small proportion of a population selected for observation and analysis. In research, especially in quantitative research, a sample is the representation of the objects, matters, things, beings or human individuals selected for observation and analysis. The data are collected from a representative group of that population, known as the 'sample'. By systematic study of the small amount the investigator can make certain inferences or can

make general conclusions about the totality from which the specific small amount is taken out. (Sarma, 2010)

For the present research, Multi Stage Random Sampling Technique was adopted in order to select the school teachers of both government and private schools in Dimapur District. At the first stage management of the school i.e government and private schools were selected altogether 15 private schools and 12 government schools were undertaken for the sample and second stage gender of the teacher's i.e male and female teacher's were included for the study.

In total a represented sample of 400 school teachers which comprise of 128 male and 272 female school teachers were the sample subjects.

3.2.5 DESCRIPTION OF THE TOOLS

The instrument which is used for gathering or collecting facts for exploring new filled is called tools. In order to obtain information or data several tools may be used according to requirements of the study.

The present objective of the study is to determine the Digital Competence among School Teachers in Dimapur District. The tool used for the study was the –

(I) Digital Competence Scale for Teachers (DCST) developed and standardized by Ramkrishna (2017) which was adopted and used by the researcher**.** Following are the major factors included in this scale:

A. Knowledge of Digital Practices,

B. Expertise in Using Digital technology for teaching learning,

C. Evaluating and Authorizing Online information,

D. Managing and Communicating Digital Data,

E. Collaborating and Sharing Digital Data for Teaching Learning.

(II) Personal data sheet: The investigator constructed a personal data sheet which consisted of –

1. Name of the teacher
2. Name of the school
3. Gender
4. Age group

5. Educational qualification
6. Teaching experience and
7. Subject taught.

VALIDITY

Item validity (discrimination validity) was found out by item test Correlation Method using Pearson's r taking 27% highest scores and 27% lowest scores and finally calculating 't' value for the items of the scale. The items which were insignificant had to be dropped in the final form. Initially, there were 63 items of which 13 items had to be deleted as they were not found to be discriminatory in item analysis. Distribution of the items in the final form was as follows:

Table-3.1: Distribution of items in the final form of the Teachers Digital Competence Scale

Factors of Digital Competence.		**Item No.**	**No.**
A	Knowledge of Digital Practices	1, 2, 3, 4, 5, 6, 20, 40, 41, 42, 43, 44	12
B	Expertise in Using Digital technology for teaching learning	7, 8, 10, 13, 23,24,27, 33, 34, 35, 36,50	12
C	Evaluating and Authorizing Online Information.	19, 22, 31, 32, 37, 38, 39, 45,47, 48	10
D	Managing and Communicating Digital Data.	9, 15, 18, 25, 26, 28, 30, 46	8
E	Collaborating and Sharing Digital Data for Teaching Learning	11, 12,14, 16, 17, 21, 29, 49	8

RELIABILITY

Reliability of the scale was determined by split half method. The test was first divided into two equivalent halves, and the correlation was calculated for these half tests. From the reliability of the half test, the self correlation of the whole test was calculated by using Spearman Brown Prophecy formula. Test-retest method also showed high reliability which is given in the following tables:

Table-3.2: Reliability of the Test by Split Half Method

Version of the form	N	R	R Index of Reliability
English version	100	.81	.79
Hindi Version	100	.85	.82

Table-3.3: Reliability of the Test by Test-Retest Method

Version of the form	N	R	R Index of Reliability
English version	100	.78	.89
Hindi Version	100	.81	.86

ADMINISTRATION OF THE TEST

It is a self-administered scale and can be used for groups of any reasonable size. It may also be used individually. The instructions are printed on the scale form. No time limit should be given for this questionnaire. However, usual time for most of the groups to finish it would be one hour. Before administering the questionnaire, it is advisable to emphasize orally that replies should be checked as quickly as possible and frankness and sincere co-operation is required. The group should be assured that their answers would be kept in strict confidence. It should be emphasized that each and every item should be answered and that there is no right and wrong answer. So, the group should give the frank opinion.

SCORING

The scoring is on a five point alternatives, viz., Strongly Agree, Agree, Undecided, Disagree and Strongly Disagree, which is as per table 3.16 below.

Table- 3.4: Scoring System

Alternatives	Strongly Agree	Agree	Undecided	Disagree	Strongly Disagree
Scores	5	4	3	2	1

The range of scores is 50 to 250.

Statistical results have been given in Table 3.17.

Table- 3.5: Statistical Results

Sample	Mean	SD	N
Secondary Teachers	142.25	34.75	100

Norms

For the purpose of interpretation of Raw Scores, Z-score Norms have been developed for Secondary School Teachers of any grade and have been given in Tables 3.18. Norms for interpretation of the level of Digital Competence have been given in table 3.19 below

Table- 3.6: Z- Score Norms for Secondary School Teachers

Raw Score	Z -Score	Raw Score	Z -Score	Raw Score	Z -Score	Raw Score	Z -Score
52	-2.59	102	-1.15	152	0.28	202	1.71
54	-2.53	104	-1.10	154	0.33	204	1.77
56	-2.48	106	-1.04	156	0.39	206	1.83
60	-2.36	110	-0.92	160	0.51	210	1.94
62	-2.30	112	-0.87	162	0.56	212	2.00
64	-2.24	114	-0.81	164	0.62	214	2.06
66	-2.18	116	-0.75	166	0.68	216	2.12
68	-2.13	118	-0.69	168	0.74	218	2.17
70	-2.06	120	-0.64	170	0.79	220	2.23
72	-2.02	122	-0.58	172	0.85	222	2.29
74	-1.96	124	-0.52	174	0.91	224	2.35
76	-1.90	126	-0.46	176	0.97	226	2.41
78	-1.84	128	-0.41	178	1.02	228	2.46
80	-1.79	130	-0.35	180	1.08	230	2.52
82	-1.73	132	-0.29	182	1.14	232	2.58
84	-1.67	134	-0.23	184	1.20	234	2.64
86	-1.61	136	-0.17	186	1.25	236	2.69
88	-1.56	138	-0.12	188	1.31	238	2.75
90	-1.50	140	-0.06	190	1.37	240	2.81
92	-1.44	142	-0.00	192	1.43	242	2.87
94	-1.38	144	0.05	194	1.48	244	2.92
96	-1.33	146	0.10	196	1.54	246	2.98
98	-1.27	148	0.16	198	1.60		
100	-1.21	150	0.22	200	1.66		

Table- 3.7: Norms for Interpretation of Level of Digital Competence

Sl. No.	Range of z-Scores	Grade	Level of Digital Competence
1	+2.01 and above	A	Extremely High Digital Competence
2	+1.26 to +2.00	B	High Digital Competence
3	+0.51 to +1.25	C	Above Average Digital Competence
4	-0.50 to +0.50	D	Average/Moderate Digital Competence
5	-0.51 to -1.25	E	Below Average Digital Competence
6	-1.26 to -2.00	F	Poor Digital Competence
7	-2.01 and below	G	Extreme Poor Digital Competence

3.3 METHOD OF DATA COLLECTION

Data were collected from the selected sample schools. Personal visits were undertaken and data were collected using the tools and in the form of questionnaire. It took two weeks to complete the process of data collection. First of all, a meeting with the head of the school was sought to ask his/her permission to carry out the data collection in the respective secondary schools of Dimapur District. The investigator personally met the teachers and asks them to volunteer themselves to participate in the study conducted. Each of them were given sufficient time to reflect on the question while answering them so that they could understand each and every question properly before they answer them. After collecting the data,

tabulation of the information according to the objectives and subsequent evaluation of the data was done.

3.4 STATISTICAL TECHNIQUES USED

Appropriate statistical techniques were used to draw out inferences from the raw data collected for this study. The following techniques were used in the present study for the analysis and interpretation of data thus collected:

1. The simple descriptive statistical techniques like computation of mean, median, mode, standard deviation, were used to ascertain the normality of the distribution of various scores of the concerned variables.

2. t-test was applied to test the significance of difference in the mean scores of variables.

4. Chi-Square was used to check the significant difference in the level of Digital Competence scores among School Teachers.

5. ANOVA test was applied to test the significant difference in the mean scores of 2 or more samples.

6. Lastly, the results were presented graphically in the form of bar diagrams.

CHAPTER IV

ANALYSIS AND INTERPRETATION

4.1 INTRODUCTION

Analysis of data means studying the organised materials in order to discover the inherent facts. These data were studied from as many possible either to explore the new facts or to interpret the already known existing facts. Analysis requires an alert and flexible open mind. It is worthwhile to prepare a plan of analysis and actual collection of data.

Analyse means categorizing, ordering, manipulating and summarizing of the data to obtain answer to search questions. The purpose of analysis is to reduce data to intelligible and interpretable form so that the relations of research problem can be studied and tested.

Interpretation of data, is also an important feature. It needs to be done in a skilled and systematic manner. It provides a means for generating awareness and also gives ample scope to the investigator to increase his knowledge and enhance his research abilities.

In the present study, analysis of data has been carried out with the help of statistical tests along with graphical representation. Keeping in view the objectives of the study, efforts have been made to present the data in proper tabulated form for proper analysis and interpretation. The investigator has analysed the data on the basis of scores of Digital Competence among School Teachers in Dimapur District.

4.2 OBJECTIVE -1: LEVEL OF DIGITAL COMPETENCE SCORES AMONG SCHOOL TEACHERS OF DIMAPUR DISTRICT.

The analysis and interpretation of this objective has been done by calculating the frequency distribution of scores and percentages in Digital Competence of School Teachers of Dimapur District. It has been presented in **Table No. 4.1 and Figure No. 4.1.**

Table No 4.1: Frequency Scores and Percentage of Digital Competence Scores of School Teachers of Dimapur District.

Level of Digital Competence	**Range of z scores**	**Frequency**	**Percentage(%)**
Extreme Poor Digital Competence	-2.01 and below	0	0%
Poor Digital Competence	-1.26 to -2.00	1	0.25%
Below Average Digital Competence	-0.51 to - 1.25	1	0.25%
Average/Moderate Digital Competence	-0.50 to + 0.50	34	8.5%
Above Average Digital Competence	+0.51 to +1.25	111	27.75%
High Digital Competence	+1.26 to +2.00	131	32.75%
Extremely High Digital Competence	+2.01 and above	122	30.5%
Total (N)		**400**	**100.00%**

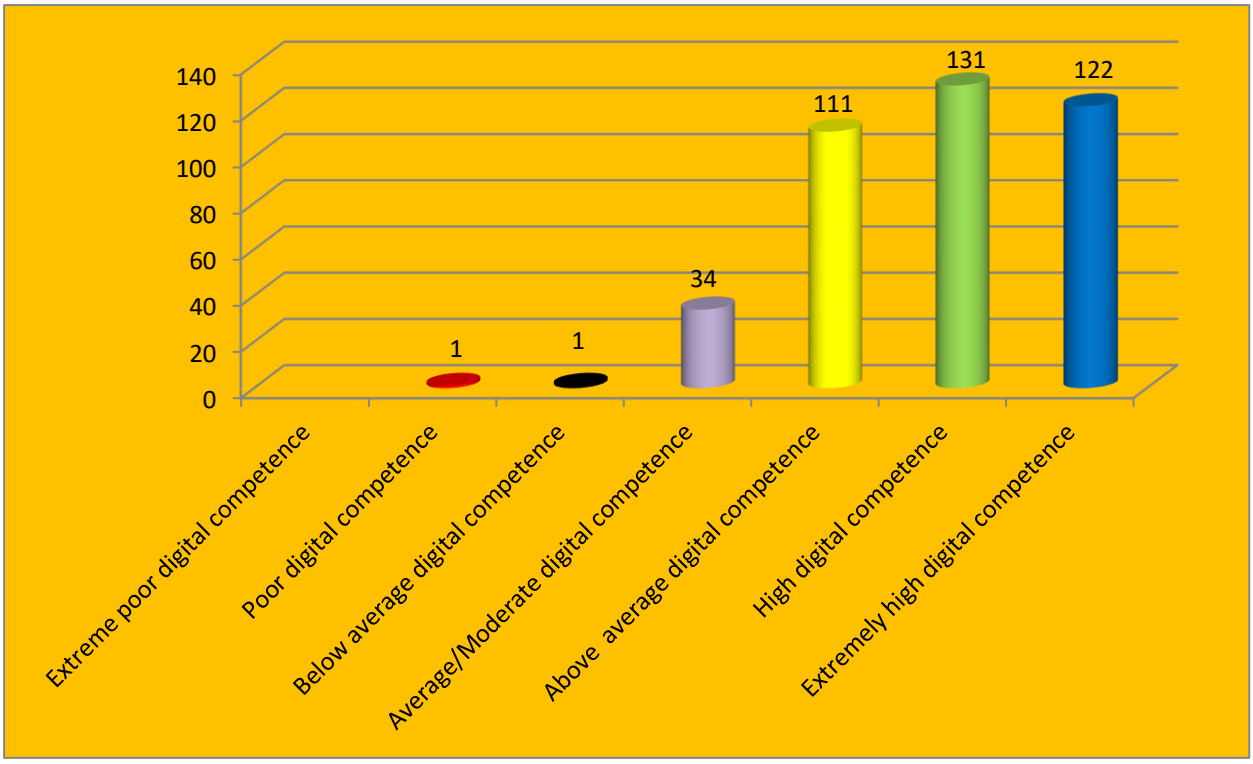

Figure No 4.1: Graphical Presentation showing overall level of Digital Competence of School Teachers of Dimapur District. **(N=400)**

As depicted in the **Table No 4.1 and figure No 4.1** shows the Levels of Digital Competence among the School Teachers of Dimapur District (N=400). Very low score that is 0.25% (1) scores fall under -1.26 to -2.00 and -0.51 to -1.25 range of scores respectively, which is rated as "Poor Digital Competence" and "Below Average Digital Competence". There were only 8.5% (34) of the scores under -0.50 to +0.50 which falls under the category Average/Moderate Digital Competence. Further, 27.75% (111) scores fell from +0.51 to +1.25 which implies Above Average Digital Competence. The maximum number of scoresi.e32.75% (131) scored in the range +1.26 to +2.00 which fall under the category of High Digital Competence. Lastly, significant score of school teachers that is30.5 % (122) falls under +2.01 and above scores which correspond to Extremely High Digital Competence. Therefore we see that 63.25 % of the respondents have rated their abilities as having High Digital Competence in Dimapur District. One factor may be because of the well qualified and trained teachers in almost all schools in the Dimapur District.

In order to find the difference in the Level of Digital Competence Scores among School Teachers in Dimapur District a null hypothesis is formulated as follow-

HYPOTHESIS- 1: THERE IS NO SIGNIFICANT DIFFERENCE IN THE LEVEL OF DIGITAL COMPETENCE SCORES AMONG SCHOOL TEACHERS

To test the null hypothesis for finding out the level of significant difference, the data has been analysed and interpreted using chi-square test. The table value of χ^2=12.59 which was checked at 0.05 level of significance with df=6 for testing the null hypothesis. It is shown in the table below:

Table No. 4.2: ***Level of Digital Competence Scores, Frequency, and χ^2 value of Digital Competence Scores of School Teachers of Dimapur District.***

Level	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**Total**	**χ^2-value**
Frequency	0	1	1	34	111	131	122	400	13.48

From **Table No. 4.2** the result shows that the computed χ^2value is 13.48 which is greater than the table value of χ^2at 0.05 level of significance for 6 df which is 12.59. Hence we reject the null hypothesis which states, "**there is no significant difference in the level of Digital Competence Scores among School Teachers**". Therefore, there is a significant difference in the level of digital competence scores among school teachers.

4.3 OBJECTIVE - 2: TO EVALUATE THE DIFFERENCE OF DIGITAL COMPETENCE SCORES AMONG SCHOOL TEACHERS WITH REFERENCE TO GENDER, MANAGEMENT, DIFFERENT AGE GROUPS, EDUCATIONAL QUALIFICATIONS, WORK EXPERIENCE AND SUBJECT TAUGHT

HYPOTHESIS- 2: THERE IS NO SIGNIFICANT DIFFERENCE BETWEEN MALE AND FEMALE SCHOOL TEACHERS TOWARDS DIGITAL COMPETENCE SCORES

In order to find out the significant difference among the categorical variables, the data has been analysed and interpreted using both descriptive statistics such as mean, standard deviation and the above hypothesis is tested by employing 't' test. The value of 't' was set at 1.96 for the level of significance with df = 398. It is presented in table below.

Table No. 4.3: ***Mean Score, SD and t-value of Digital Competence Scores between Male and Female School Teachers***

Variable and its Dimensions	**Gender**	**N**	**Mean**	**Std. Deviation**	**t-Value**
Knowledge of Digital	Male	128	49.09	8.246	

Practices	Female	272	45.56	7.731	4.161*
Expertise in Using Digital Technology for Teaching Learning	Male	128	48.88	7.411	1.346@
	Female	272	47.85	6.928	
Evaluating and Authorizing Online Information	Male	128	39.44	6.672	2.895*
	Female	272	37.51	5.995	
Managing and Communicating Digital Data	Male	128	31.89	4.779	2.040*
	Female	272	30.88	4.529	
Collaborating and Sharing Digital Data for Teaching Learning	Male	128	33.12	4.934	.594@
	Female	272	32.78	5.468	
Digital Competence Score	**Male**	**128**	**202.41**	**29.180**	**2.601***
	Female	**272**	**194.58**	**27.516**	

Note: Table value for 398 df at 0.05 level =1.96

@ indicates not significant at 0.05 level and * indicates significant at 0.05 level

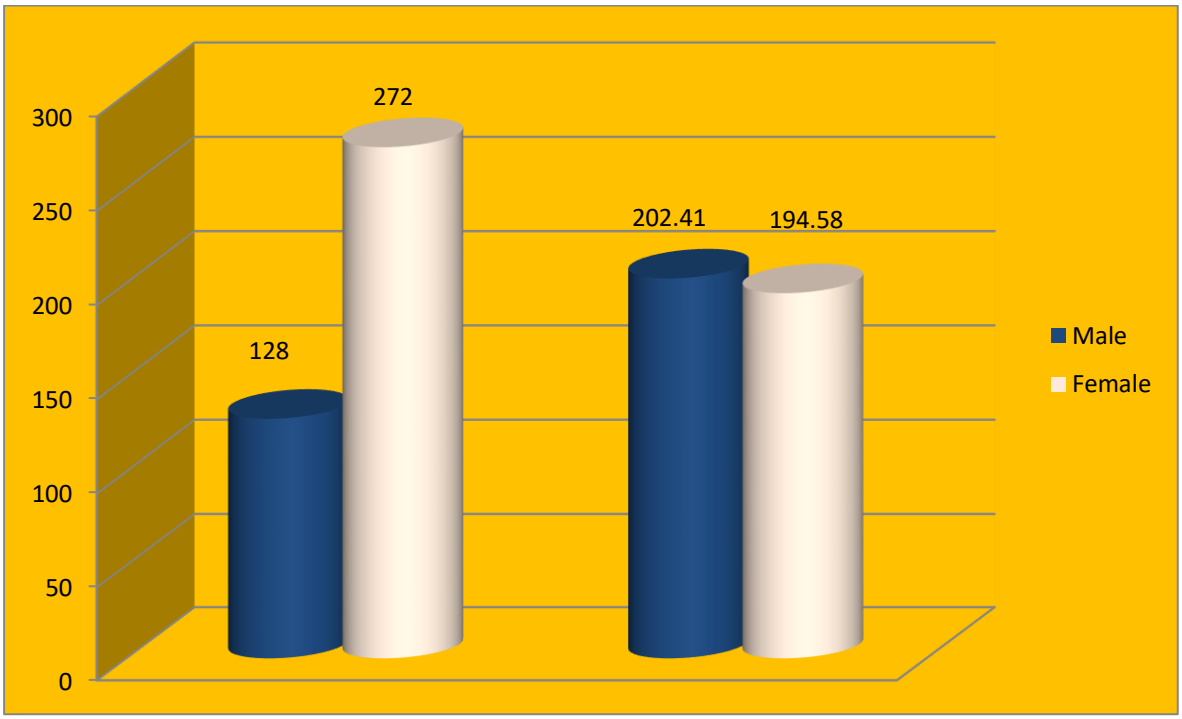

Figure No. 4.2: Digital Competence Scores between Male and Female School Teachers

From the **Table No.4.3**, the first dimension of knowledge of digital practices it can be observed that the mean scores of male school teachers is 49.09 and the mean scores of female

school teachers is 45.56. This indicates that male school teachers have higher knowledge of digital practices as compared to female school teachers. The standard deviation (SD) of male school teachers is 8.246 and that of female school teachers is 7.731

The second dimension expertise in using digital technology for teaching learning it can be observed that the mean scores of male school teachers is 48.88 and the mean scores of female school teachers is 47.85. This indicates that male school teachers are more expertise in using digital technology for teaching learning as compared to female school teachers. The standard deviation (SD) of male school teachers is 7.411 and that of female school teachers is 6.928

Thirdly the dimension of evaluating and authorizing online information it can be observed that the mean scores of male school teachers is 39.44 and the mean scores of female school teachers is 37.51. This indicates that male school teachers are more competent in evaluating and authorizing online information as compared to female school teachers. The standard deviation (SD) of male school teachers is 6.672 and that of female school teachers is 5.995

Fourthly, the dimension of managing and communicating digital data it can be observed that the mean scores of male school teachers is 31.89 and the mean scores of female school teachers is 30.88. This indicates that male school teachers are more competent in managing and communicating digital data as compared to female school teachers. The standard deviation (SD) of male school teachers is 4.779 and that of female school teachers is 4.529.

Fifthly, the dimension of collaborating and sharing digital data for teaching learning it can be observed that the mean scores of male school teachers is 33.12 and the mean scores of female school teachers is 32.78. This indicates that male school teachers are more competent in collaborating and sharing digital data for teaching learning as compared to female school teachers. The standard deviation (SD) of male school teachers is 4.934 and that of female school teachers is 5.468.

Lastly, from **Table No. 4.2** overall data shows the mean scores of digital competence of male teachers is 202.41 and the mean scores of female teachers is 194.58. This indicates the difference of mean score of 7.83 which is in favour of male teachers and shows that male school teachers have higher digital competence than the female teachers. The standard deviation (SD) of male school teachers is 29.180 and that of female school teachers is 27.516.

From the **Table No. 4.3 and Figure No. 4.2** it shows that the computed t-value is 2.601 which is higher than the table value (1.96) at 0.05 level of significance with 398 df. This indicates that there is a significant difference of digital competence between the mean scores of male school teachers and female school teachers. Thus the null hypothesis, "**there is no significant difference between male and female school teachers towards digital competence scores** "is not accepted. Hence the results show that male school teachers have higher digital competence as compared to female school teachers. The reason may be because of their interest mostly males are more inclined towards technology and that this fascinates them to be more digital literate than the females.

HYPOTHESIS- 3: THERE IS NO SIGNIFICANT DIFFERENCE BETWEEN GOVERNMENT AND PRIVATE SCHOOL TEACHERS TOWARDS DIGITAL COMPETENCE SCORES

The above hypothesis is tested by employing t-test. The results are presented below

Table No. 4.4: Mean Score, SD and t- value of Digital Competence Scores between Government and Private School Teachers

Variable and its Dimensions	Management	N	Mean	S.D	t-Value
Knowledge of Digital Practices	Government	185	44.88	7.859	4.252*
	Private	215	48.25	7.920	
Expertise in Using Digital Technology for Teaching Learning	Government	185	45.57	6.537	7.262*
	Private	215	50.43	6.789	
Evaluating and Authorizing Online Information	Government	185	36.19	5.746	5.947*
	Private	215	39.79	6.250	
Managing and Communicating Digital Data	Government	185	29.92	4.650	5.305*
	Private	215	32.31	4.325	
Collaborating and Sharing Digital Data for Teaching Learning	Government	185	31.42	4.332	5.325*
	Private	215	34.15	5.722	
Digital	**Government**	**185**	**187.98**	**26.263**	**6.256***

Competence score	**Private**	**215**	**204.92**	**27.617**	

Note: Table value for 398 df at 0.05 level =1.96

@ indicates not significant at 0.05 level and * indicates significant at 0.05 level

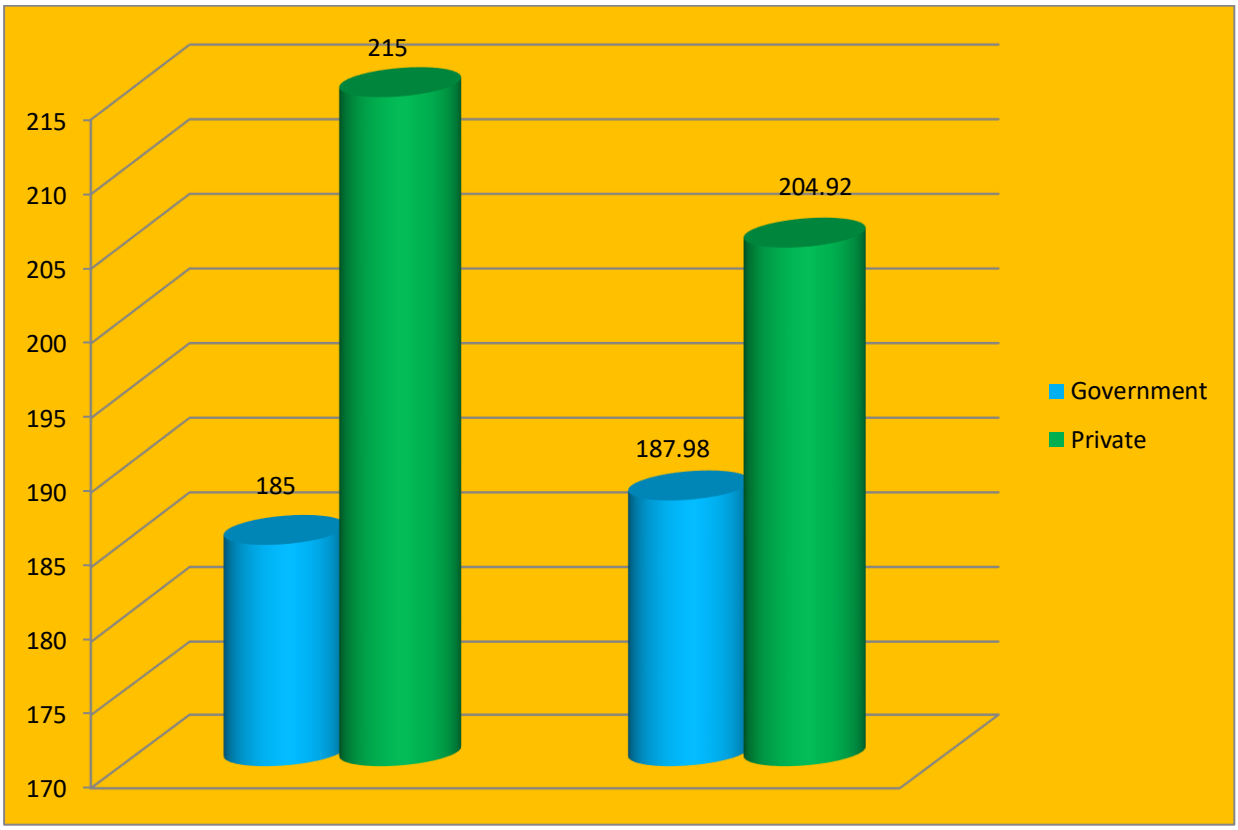

Figure No. 4.3: Digital Competence Scores between Government and Private School Teachers

From the **Table No. 4.4,** the first dimension of knowledge of digital practices it can be observed that the mean scores of government school teachers is 44.88 and the mean scores of

private school teachers is 48.25. This indicates that private school teachers have higher knowledge of digital practices as compared to government school teachers. The standard deviation (SD) of government school teachers is 7.859 and that of private school teachers is 7.92.

The second dimension expertise in using digital technology for teaching learning it can be observed that the mean scores of government school teachers is 45.57 and the mean scores of private school teachers is 50.43 This indicates that private school teachers are more expertise in using digital technology for teaching learning as compared to government school teachers. The standard deviation (SD) of private school teachers is 6.537 and that of government school teachers is 6.789

Thirdly the dimension of evaluating and authorizing online information it can be observed that the mean scores of government school teachers is 36.19 and the mean scores of private school teachers is 39.79. This indicates that government school teachers are more competent in evaluating and authorizing online information as compared to private school teachers. The standard deviation (SD) of government school teachers is 5.746 and that of private school teachers is 6.250

Fourthly, the dimension of managing and communicating digital data it can be observed that the mean scores of government school teachers is 29.92 and the mean scores of private school teachers is 32.31. This indicates that private school teachers are more competent in collaborating and sharing digital data for teaching learning as compared to government school teachers. The standard deviation (SD) of government school teachers is 4.650 and that of private school teachers is 4.325.

Fifthly, the dimension of collaborating and sharing digital data for teaching learning it can be observed that the mean scores of government school teachers is 31.42 and the mean scores of private school teachers is 34.15. This indicates that private school teachers are more competent in collaborating and sharing digital data for teaching learning as compared to government school teachers. The standard deviation (SD) of government school teachers is 4.332 and that of private school teachers is 5.722.

Lastly, from **Table No. 4.4** overall data shows the mean scores of digital competence of government teachers is 187.98 and the mean scores of private teachers is 204.92. This indicates the difference of mean score of 16.94 which is in favour of private school teachers and shows that private school teachers have higher digital competence than the private school

teachers. The standard deviation (SD) of government school teachers is 26.263 and that of private school teachers is 27.617.

From **table No. 4.4 and Figure No. 4.3** shows that the observed t-value is 6.256 which is higher than the table value (1.96) with 398 df at 0.05 level of significance. It indicates that there is a significant difference of digital competence with respect to government and private school teachers. The stated null hypothesis, "**there is no significant difference between government and private school teachers towards digital competence scores"** is not accepted. Thus the result revealed that the private school teachers have higher digitally competence than the school teachers working in government schools. The probable reason may be because inprivate school the teacher's performance is being monitored as a result private school teachers are updated with modern teaching methods which is lacking in government schools.

HYPOTHESIS- 4: THERE IS NO SIGNIFICANT DIFFERENCE IN DIGITAL COMPETENCE SCORES AMONG SCHOOL TEACHERS WITH REFERENCE TO DIFFERENT AGE GROUPS

In order to find out the significant difference, the data has been analysed and interpreted using both descriptive statistics such as mean, standard deviation and the above hypothesis is tested by employing inferential statistics namely ANOVA. It is presented in table below.

Table No. 4.5: Mean score, SD of different age groups of school teachers with reference to digital competence scores

Variable and its Dimensions	Different age groups	N	Mean	S .D
Knowledge of Digital Practices	Below 25 Years	7	50.86	6.817
	26 Years to 30 Years	95	48.95	7.425
	31 Years to 35 Years	123	47.27	7.163
	36 Years and Above	175	44.89	8.637
Expertise in Using Digital Technology for Teaching Learning	Below 25 Years	7	48.57	6.451
	26 Years to 30 Years	95	50.85	6.853
	31 Years to 35 Years	123	48.46	6.030
	36 Years and Above	175	46.52	7.506
Evaluating and	Below 25 Years	7	39.29	6.157

Authorizing Online Information	26 Years to 30 Years	95	39.32	6.837
	31 Years to 35 Years	123	37.75	5.679
	36 Years and Above	175	37.70	6.328
Managing and Communicating Digital Data	Below 25 Years	7	32.86	4.562
	26 Years to 30 Years	95	32.47	4.708
	31 Years to 35 Years	123	31.14	4.395
	36 Years and Above	175	30.50	4.625
Collaborating and Sharing Digital Data for Teaching Learning	Below 25 Years	7	33.43	3.910
	26 Years to 30 Years	95	34.47	7.128
	31 Years to 35 Years	123	32.70	4.443
	36 Years and Above	175	32.14	4.539
Digital Competence Score	**Below 25 Years**	**7**	**205.00**	**26.827**
	26 Years to 30 Years	**95**	**206.06**	**29.355**
	31 Years to 35 Years	**123**	**197.31**	**24.696**
	36 Years and Above	**175**	**191.74**	**28.950**

Table No.4.6: ANOVA Table

Variable and its Dimensions	**Sum of squares**	**Mean of squares**	**F - Value**
Knowledge of Digital Practices	Between Groups	404.294	6.481*
	Within Groups	62.380	
Expertise in Using Digital Technology for Teaching Learning	Between Groups	390.402	8.178*
	Within Groups	47.737	
Evaluating and Authorizing Online Information	Between Groups	64.553	1.647@
	Within Groups	39.202	
Managing and Communicating Digital Data	Between Groups	86.750	4.145*
	Within Groups	20.927	
Collaborating and Sharing Digital Data for Teaching Learning	Between Groups	114.654	4.181*
	Within Groups	27.424	
Digital Competence Score	**Between Groups**	**4365.543**	**5.658***
	Within Groups	**771.594**	

Note: Table value for (3,396) df at 0.05 level =2.62

@ indicates not significant at 0.05 level and * indicates significant at 0.05 level.

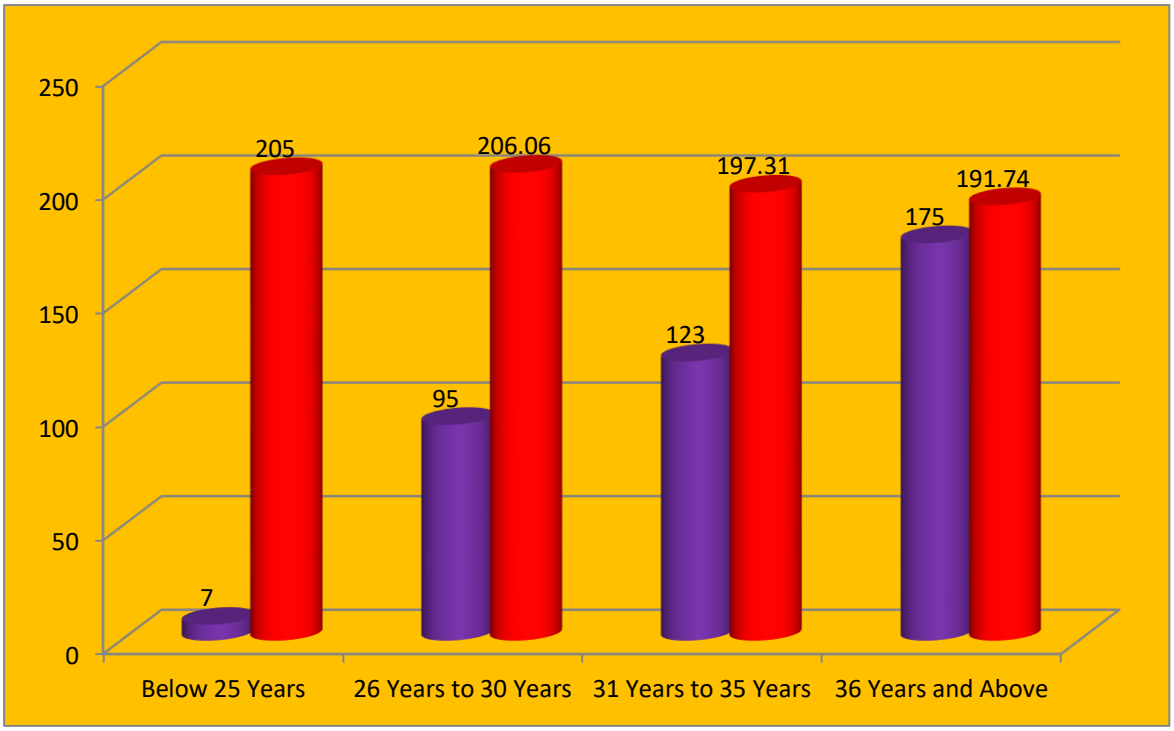

Figure No. 4.4: Digital Competence Scores between different age groups of school teachers

From the **table No. 4.5**, the first dimension of knowledge of digital practices it can be observed that the mean scores of age group below 25 years is 50.86, 26 years to 30 years is 48.95, 31 years to 35 years is 47.27 and 36 years and above is 44.89 respectively. This indicates that the age group below 25 years have higher knowledge of digital practices among the rest. The standard deviation (SD) of below 25 years is 6.817, 26 years to 30 years is 7.425, 31 years to 35 years is 7.163 and that of standard deviation (SD) of 36 years and above is 8.637.

The second dimension expertise in using digital technology for teaching learning it can be observed that the mean scores of age group below 25 years is 48.57, 26 years to 30 years is 50.85, 31 years to 35 years is 48.46 and 36 years and above is 46.52 respectively. This indicates that the age group below 26 years to 30 years have high expertise in using digital technology for teaching learning then the rest. The standard deviation (SD) of below

25 years is 6.451, 26 years to 30 years is 6.853, 31 years to 35 years is 6.036 and that of standard deviation (SD) of 36 years and above is 7.506.

Thirdly the dimension of evaluating and authorizing online information it can be observed that the mean scores of age group below 25 years is 39.29, 26 years to 30 years is 39.32 , 31 years to 35 years is 37.75 and 36 years and above is 37.70 respectively. This indicates that the age group 26 years to 30 years shows slightly higher in evaluating and authorizing online information then the rest. The standard deviation (SD) of below 25 years is 6.157, 26 years to 30 years is 6.837, 31 years to 35 years is 5.679 and that of standard deviation (SD) of 36 years and above is 6.328.

Fourthly, the dimension of managing and communicating digital data it can be observed that the mean scores of age group below 25 years is 32.86, 26 years to 30 years is 32.47, 31 years to 35 years is 31.14 and 36 years and above is 30.50 respectively. This indicates that the age group below 25 years shows slightly higher in managing and communicating digital data then the rest. The standard deviation (SD) of below 25 years is4.562, 26 years to 30 years is4.708, 31 years to 35 years is 4.395and that of standard deviation (SD) of 36 years and above is4.625.

Fifthly, the dimension of collaborating and sharing digital data for teaching learning it can be observed that the mean scores of age group below 25 years is 33.43, 26 years to 30 years is 34.47, 31 years to 35 years is 32.70 and 36 years and above is 32.14 respectively. This indicates that the age group 26 years to 30 years shows relatively higher in collaborating and sharing digital data for teaching learning then the rest. The standard deviation (SD) of below 25 years is3.910, 26 years to 30 years is 7.126, 31 years to 35 years is 4.443 and that of standard deviation (SD) of 36 years and above is4.530.

Lastly, from **Table No. 4.5**and **Figure No. 4.4**overall data shows the mean scores of digital competence of different age groups such as below 25 years mean scores is 205.00, age group 26 years -30 years 206.06, 31 years to 35 years is 197.31 and 36 years and above age group mean scores is 191.74. This data shows that 26 years to 30 years age group school teachers have higher digital competence among the other age group. The standard deviation (SD) of below 25 years is 26.827, 26 years to 30 years is 29.355, 31 years to 35 years is 24.696 and that of standard deviation (SD) of 36 years and above is 28.950.

The above **Table No. 4.6** shows that the calculated value of F is 5.658 which is greater than the table value of 2.62 at 0.05 level of significance with (3,396) df and hence we

do not accept the null hypothesis, "**there is no significant difference in digital competence scores among school teachers with reference to different age groups**". We may therefore, conclude that the different age groups of school teachers have significant difference to digital competence. Therefore the study revealed that the teachers between the age group 26 years to 30 years showed higher Digital Competence which may be because this age group consist of young and fresh graduates who are mostly internet savvy than those school teachers who are older adults.

HYPOTHESIS- 5: THERE IS NO SIGNIFICANT DIFFERENCE IN DIGITAL COMPETENCE SCORES AMONG SCHOOL TEACHERS WITH REFERENCE TO EDUCATIONAL QUALIFICATIONS

In order to find out the significant difference, the data has been analysed and interpreted using both descriptive statistics such as mean, standard deviation and the above hypothesis is tested by employing inferential statistics namely ANOVA. It is presented in table below.

Table No 4.7: Mean score, SD of educational qualifications with reference to digital competence scores

Variable and its Dimensions	Educational Qualifications	N	Mean	SD
Knowledge of Digital Practices	10+2+D.El.Ed.	18	42.94	6.830
	U.G Degree+D.El.Ed.	21	46.14	7.793
	U.G Degree+B.Ed.	69	46.83	6.675
	P.G Degree+B.Ed.	130	46.32	8.128
	Others	162	47.41	8.631
Expertise in Using Digital Technology for Teaching Learning	10+2+D.El.Ed.	18	43.61	7.245
	U.G Degree+D.El.Ed.	21	47.14	7.774
	U.G Degree+B.Ed.	69	47.64	5.901
	P.G Degree+B.Ed.	130	47.98	7.010
	Others	162	49.22	7.338
Evaluating and Authorizing Online Information	10+2+D.El.Ed.	18	34.06	5.599
	U.G Degree+D.El.Ed.	21	37.67	6.367
	U.G Degree+B.Ed.	69	37.12	5.186

	P.G Degree+B.Ed.	130	38.30	5.941
	Others	162	38.93	6.830
Managing and Communicating Digital Data	10+2+D.El.Ed.	18	28.50	4.315
	U.G Degree+D.El.Ed.	21	30.86	4.953
	U.G Degree+B.Ed.	69	30.68	4.192
	P.G Degree+B.Ed.	130	31.11	4.821
	Others	162	31.85	4.544
Collaborating and Sharing Digital Data for Teaching Learning	10+2+D.El.Ed.	18	30.28	4.548
	U.G Degree+D.El.Ed.	21	32.38	4.914
	U.G Degree+B.Ed.	69	32.38	4.044
	P.G Degree+B.Ed.	130	32.72	4.411
	Others	162	33.60	6.361
Digital Competence Score	**10+2+D.El.Ed.**	**18**	**179.39**	**25.571**
	U.G Degree+D.El.Ed.	**21**	**194.19**	**29.871**
	U.G Degree+B.Ed.	**69**	**194.64**	**22.361**
	P.G Degree+B.Ed.	**130**	**196.42**	**28.101**
	Others	**162**	**201.01**	**30.015**

Table No 4. 8: ANOVA Table

Variable and its Dimensions	**Sum of squares**	**Mean of squares**	**F-value**
Knowledge of Digital Practices	Between Groups	90.603	1.401@
	Within Groups	64.692	
Expertise in Using Digital Technology for Teaching Learning	Between Groups	149.470	3.031*
	Within Groups	49.309	
Evaluating and Authorizing Online Information	Between Groups	120.164	3.115*
	Within Groups	38.575	
Managing and Communicating Digital Data	Between Groups	55.549	2.636*
	Within Groups	21.076	
Collaborating and Sharing Digital Data for Teaching Learning	Between Groups	57.946	2.086@
	Within Groups	27.778	

Digital Competence score	**Between Groups**	**2193.439**	**2.796***
	Within Groups	**784.492**	

Note: Table value for (4,395) df at 0.05 level =2.39

@ indicates not significant at 0.05 level and * indicates significant at 0.05 level

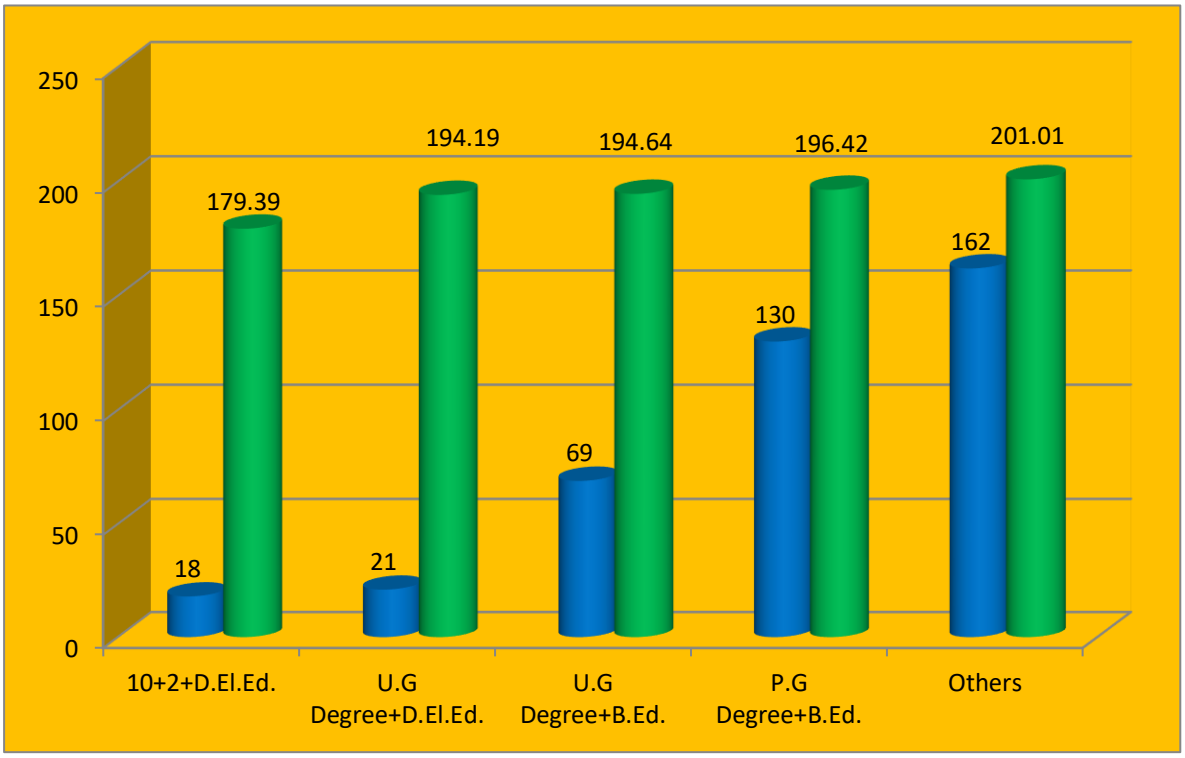

Figure No. 4.5: Digital Competence Scores of school teachers with reference to educational qualification

From the **Table No. 4.7,** the first dimension of knowledge of digital practices it can be observed that the mean scores of 10+2+D.El.Ed is 42.94, the mean scores of UG Degree + D.El.Ed is 46.14, UG Degree + B.Edmean scores is 46.83, the mean scores of PG Degree + B.Ed is 46.32 and lastly the mean scores of other educational qualifications is 47.41. This indicates that the category other educational qualifications have higher knowledge of digital practices. The standard deviation (SD) of 10+2+D.El.Ed is 6.830, UG Degree + D.El.Ed is 7.793, UG Degree + B.Ed is 6.675, PG Degree + B.Ed is 8.128 and standard deviation (SD) of other educational qualification is 8.631.

The second dimension expertise in using digital technology for teaching learning it can be observed that the mean scores of 10+2+D.El.Ed is 43.61, the mean scores of UG Degree + D.El.Ed is 47.14, UG Degree + B.Ed mean scores is 47.64, the mean scores of PG Degree + B.Ed is 47.98 and lastly the mean scores of other educational qualifications is 49.22. This indicates that the category other educational qualifications have higher expertise

in using digital technology for teaching learning. The standard deviation (SD) of 10+2+D.El.Ed is 7.245, UG Degree + D.El.Ed is 7.794, UG Degree + B.Ed is 5.901, PG Degree + B.Ed is 7.010 and standard deviation (SD) of other educational qualification is 7.338.

Thirdly the dimension of evaluating and authorizing online information it can be observed that the mean scores of the mean scores of 10+2+D.El.Ed is 34.06, the mean scores of UG Degree + D.El.Ed is 37.67, UG Degree + B.Ed mean scores is 37.12, the mean scores of PG Degree + B.Ed Degree is 38.30 and lastly the mean scores of other educational qualifications is38.93. This indicates that the category other educational qualifications have higher evaluating and authorizing online information. The standard deviation (SD) of 10+2+D.El.Ed is 5.599, UG Degree + D.El.Ed is 6.367, UG Degree + B.Ed is 5.186, PG Degree + B.Ed is 5.941 and standard deviation (SD) of other educational qualification is 6.830.

Fourthly, the dimension of managing and communicating digital data it can be observed that the mean scores of 10+2+D.El.Ed is 28.50, the mean scores of UG Degree + D.El.Ed is 30.86, UG Degree + B.Ed mean scores is 30.68, the mean scores of PG Degree + B.Ed Degree is 31.11 and lastly the mean scores of other educational qualifications is 31.85. This indicates that the category other educational qualifications scored higher in the dimension managing and communicating digital data. The standard deviation (SD) of 10+2+D.El.Ed is 5.599, UG Degree + D.El.Ed is 6.367, UG Degree + B.Ed is 5.186, PG Degree + B.Ed is 5.941 and standard deviation (SD) of other educational qualification is 6.830.

Fifthly, the dimension of collaborating and sharing digital data for teaching learning it can be observed that the mean scores of 10+2+D.El.Ed and UG Degree + D.El.Edis 30.28 and 32.38 respectively, UG Degree + B. Ed mean scores and PG Degree + B. Ed is 32.38 and 32.72 and lastly the mean scores of other educational qualifications is 33.60. This indicates that the category other educational qualifications scored higher in collaborating and sharing digital data for teaching learning. The standard deviation (SD) of 10+2+D.El.Ed is 4.548, UG Degree + D.El.Ed is 4.914, UG Degree + B.Edis4.044, PG Degree + B.Ed is 4.411and standard deviation (S.D) of other educational qualification is 6.361.

Lastly, from **Table No. 4.7 and Figure No. 4.5**overall data shows the mean scores of digital competence with respect to different educational qualifications i.e 10+2+D.El.Ed and UG Degree + D.El.Ed is 179.39 and 194.19 respectively. UG Degree + B.Ed and PG Degree

+ B.Ed is 194.64 and 196.42 and lastly the mean scores of other educational qualification is 201.01. This indicates that school teachers with other educational qualifications have higher digital competence. The standard deviation (S.D) of 10+2+D.El.Ed is 25.571, UG Degree + D.El.Ed is 29.871, UG Degree + B.Ed and PG Degree + B.Ed is 22.361 and 28.101 respectively and lastly standard deviation (S.D) of other educational qualification is 30.015.

The above **Table No. 4.8** shows that the calculated value of F is 2.796 which is greater than the table value of 2.39at 0.05 level of significance with (4,395) df and hence we do not accept the null hypothesis, "**there is no significant difference in digital competence scores among school teachers with reference to educational qualifications.**". We may therefore, conclude that there is a significant difference to digital competence with different educational qualifications among school teachers in Dimapur District. The result depicted the other category which consist of teachers who does not possess any teacher education qualification, and teachers belonging from engineering background having the higher Digital Competence.

HYPOTHESIS-6: THERE IS NO SIGNIFICANT DIFFERENCE IN DIGITAL COMPETENCE SCORES AMONG SCHOOL TEACHERS WITH REFERENCE TO WORK EXPERIENCE

In order to find out the significant difference, the data has been analysed and interpreted using both descriptive statistics such as mean, standard deviation and the above hypothesis is tested by employing inferential statistics namely ANOVA. It is presented in table below.

Table No 4.9: Mean score, SD of Work Experience with reference to Digital Competence Scores

Variable and its Dimensions	Work Experience	N	Mean	S.D
Knowledge of Digital Practices	Less than 2 Years	35	49.40	8.562
	2 Years to 5 Years	101	47.82	7.176
	6 Years to 10 Years	126	47.36	7.571
	11 Years and Above	135	44.51	8.540
	Others	3	47.00	11.269
Expertise in Using	Less than 2 Years	35	50.29	7.290

Digital Technology for Teaching Learning	2 Years to 5 Years	101	50.19	6.164
	6 Years to 10 Years	126	47.85	6.705
	11 Years and Above	135	46.46	7.545
	Others	3	47.33	11.015
Evaluating and Authorizing Online Information	Less than 2 Years	35	39.80	6.846
	2 Years to 5 Years	101	38.43	6.295
	6 Years to 10 Years	126	37.63	5.897
	11 Years and Above	135	37.90	6.407
	Others	3	39.67	8.963
Managing and Communicating Digital Data	Less than 2 Years	35	32.43	4.791
	2 Years to 5 Years	101	32.09	4.231
	6 Years to 10 Years	126	30.77	4.725
	11 Years and Above	135	30.60	4.689
	Others	3	32.67	3.786
Collaborating and Sharing Digital Data for Teaching Learning	Less than 2 Years	35	33.51	5.031
	2 Years to 5 Years	101	33.59	4.295
	6 Years to 10 Years	126	32.35	4.474
	11 Years and Above	135	32.68	6.592
	Others	3	33.67	5.686
Digital Competence Score	**Less than 2 Years**	**35**	**205.43**	**31.349**
	2 Years to 5 Years	**101**	**202.12**	**25.726**
	6 Years to 10 Years	**126**	**195.95**	**26.257**
	11 Years and Above	**135**	**192.15**	**30.064**
	Others	**3**	**200.33**	**40.464**

Table No. 4.10: ANOVA Table

Variable and its Dimensions	**Sum of squares**	**Mean of squares**	**F-Value**
Knowledge of Digital Practices	Between Groups	270.927	4.310*
	Within Groups	62.865	
Expertise in Using Digital Technology for Teaching Learning	Between Groups	244.536	5.058*
	Within Groups	48.347	
Evaluating and Authorizing Online Information	Between Groups	38.193	.969@
	Within Groups	39.405	
Managing and Communicating Digital Data	Between Groups	52.757	2.500*
	Within Groups	21.104	
Collaborating and Sharing Digital Data for Teaching Learning	Between Groups	27.058	.963@
	Within Groups	28.090	
Digital Competence score	**Between Groups**	**2119.843**	**2.700***
	Within Groups	**785.237**	

Note: Table value for (4,395) df at 0.05 level =2.39

@ indicates not significant at 0.05 level and * indicates significant at 0.05 level

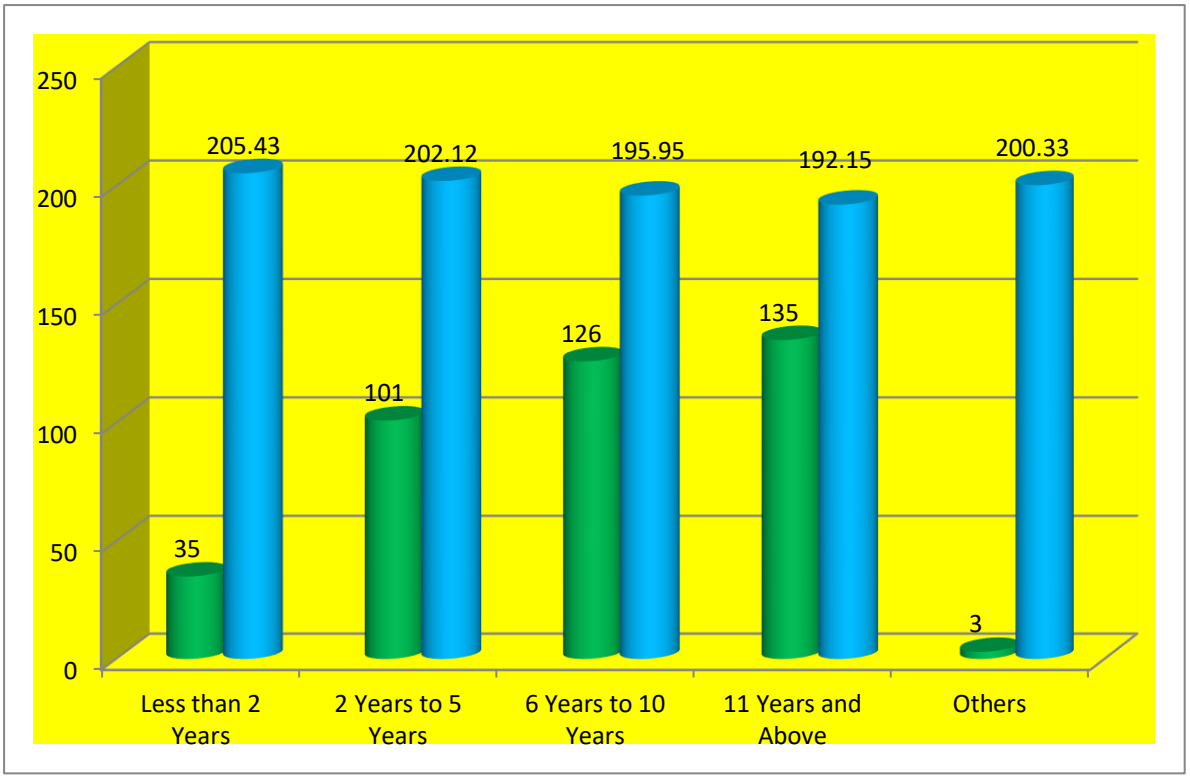

Figure No. 4.6: Digital Competence Scores of School Teachers with reference to work experience

From the **Table No. 4.9,** the first dimension of knowledge of digital practices it can be observed that the mean scores of less than 2 Years and 2 years to 5 years is 49.40 and 47. 82 respectively, 6 years to 10 years and 11 years and above mean scores is 47.36 and 44.51 each. Lastly the mean scores of other category is 47.00. Thus it can be concluded that the category less than 2 years working experience have higher knowledge of digital practices. The standard deviation (SD) of less than 2 Years is 8.562, 2 years to 5 years is 7.176, 6 years to 10 years is 7.571, 11 years and above is 8.540 and standard deviation (SD) of other category is 11.269.

The second dimension expertise in using digital technology for teaching learning it can be observed that the mean scores of less than 2 Years and 2 years to 5 years is 50.29 and 50.19 respectively, 6 years to 10 years and 11 years and above mean scores is 47.85 and 46.46 each. Lastly the mean scores of other category is 47.33. This indicates that the category less than 2 years working experience have higher expertise in using digital technology for teaching learning. The standard deviation (SD) of less than 2 Years is 7.290, 2 years to 5 years is 6.164, 6 years to 10 years is 6.705, 11 years and above is 7.545 and standard deviation (SD) of other category is 11.015.

Thirdly the dimension of evaluating and authorizing online information it can be observed that the mean scores of the mean scores of less than 2 Years and 2 years to 5 years is 39.80 and 38.43 respectively, 6 years to 10 years and 11 years and above mean scores is 37.63and 37.90 each. Lastly the mean scores of other category is 39.67. This indicates that the category less than 2 years working experience have higher evaluating and authorizing online information. The standard deviation (SD) of less than 2 Years and 2 years to 5 years is 6.846 and 6.295respectively, 6 years to 10 years and 11 years and above standard deviation (SD)scores is 5.897 and 6.407 each. Lastly the standard deviation (SD) scores of other category is 8.963.

Fourthly, the dimension of managing and communicating digital data it can be observed that the mean scores of less than 2 Years and 2 years to 5 years is 32.43 and 32.09 respectively, 6 years to 10 years and 11 years and above mean scores is 30.77 and 30.60 each. Lastly the mean scores of other category is 32.67. This indicates that the other category of working experience scored higher dimension managing and communicating digital data. The standard deviation (SD) of less than 2 Years and 2 years to 5 years is 4.791and 4.231 respectively, 6 years to 10 years and 11 years and above standard deviation (SD)is 4.725 and 4.689 each. Lastly the standard deviation (SD) of other category is 3.786.

Fifthly, the dimension of collaborating and sharing digital data for teaching learning it can be observed that the mean scores of less than 2 Years and 2 years to 5 years is 33.51 and 33.59 respectively, 6 years to 10 years and 11 years and above mean scores is 32.35 and 32.68 each. Lastly the mean scores of other category is 33.67. This indicates that the category other working experience scored higher in collaborating and sharing digital data for teaching learning. The standard deviation (SD) of 2 Years and 2 years to 5 years is 5.031and 4.295 respectively, 6 years to 10 years and 11 years and above SD scores is 4.474 and 6.592 each. Lastly the standard deviation (SD) scores of other category is 5.686.

Lastly, from **Table No. 4.9 and Figure No. 4.6** overall data shows the mean scores of digital competence with respect to different working experience i.e less than 2 Years and 2 years to 5 years is 205.43 and 202.12 respectively, 6 years to 10 years and 11 years and above mean scores is 195.95 and 192.15 each. Lastly the mean scores of other category is 200.33. This indicates that school teachers with less than 2 years working experience have higher digital competence. The standard deviation (S.D) of less than 2 Years and 2 years to 5 years is 31.349 and 25.726 respectively, 6 years to 10 years and 11 years and above standard

deviation (SD) scores is 26.257 and 30.064 each. Lastly the standard deviation (SD) scores of other category is 40.464.

The above **Table No. 4.10** shows that the calculated value of F is 2.700 which is greater than the table value of 2.39 at 0.05 level of significance with (4,395) df and hence we do not accept the null hypothesis, "**there is no significant difference in digital competence among school teachers with reference to work experience.**".We may therefore, conclude that there is a significant difference to digital competence with different years of work experience among school teachers in Dimapur District. The observed result show that the teachers having less than 2 years have more Digital Competence and they mostly fall under the age group of 26 years to 30 years which showed higher digital Competence.

HYPOTHESIS-7: THERE IS NO SIGNIFICANT DIFFERENCE IN DIGITAL COMPETENCE SCORES AMONG SCHOOL TEACHERS WITH REFERENCE TO SUBJECT TAUGHT

In order to find out the significant difference, the data has been analysed and interpreted using both descriptive statistics such as mean, standard deviation and the above hypothesis is tested by employing inferential statistics namely ANOVA. It is presented in table below.

Table No. 4.11: Mean score, SD of Digital Competence Scores with reference to Subject Taught

Variable and its Dimensions	Subject Taught	N	Mean	S. D
Knowledge of Digital Practices	Mathematics	48	48.21	7.688
	Science	69	47.94	7.067
	Social Science	111	46.86	7.503
	English	91	44.41	8.446
	Others	81	47.05	8.959
Expertise in Using Digital Technology for Teaching Learning	Mathematics	48	48.42	7.163
	Science	69	48.99	5.728
	Social Science	111	47.91	7.625
	English	91	47.80	6.771
	Others	81	48.15	7.780
Evaluating and Authorizing Online Information	Mathematics	48	38.92	7.151
	Science	69	38.35	5.708
	Social Science	111	37.99	6.469
	English	91	37.33	5.806

	Others	81	38.54	6.475
Managing and Communicating Digital Data	Mathematics	48	32.06	4.970
	Science	69	32.17	4.158
	Social Science	111	30.81	4.782
	English	91	30.98	4.315
	Others	81	30.67	4.840
Collaborating and Sharing Digital Data for Teaching Learning	Mathematics	48	33.38	4.711
	Science	69	33.13	3.391
	Social Science	111	32.45	4.871
	English	91	33.29	7.118
	Others	81	32.54	5.182
Digital Competence Score	**Mathematics**	**48**	**200.98**	**29.057**
	Science	**69**	**200.58**	**23.900**
	Social Science	**111**	**196.03**	**29.055**
	English	**91**	**193.80**	**28.128**
	Others	**81**	**196.95**	**30.286**

Table No. 4.12: ***ANOVA TABLE***

Variable and its Dimensions	**Sum of squares**	**Mean of squares**	**F-Value**
Knowledge of Digital Practices	Between Groups	176.786	2.770*
	Within Groups	63.819	
Expertise in Using Digital Technology for Teaching Learning	Between Groups	17.157	.339@
	Within Groups	50.649	
Evaluating and Authorizing Online Information	Between Groups	26.808	.678@
	Within Groups	39.520	
Managing and Communicating Digital Data	Between Groups	36.370	1.710@
	Within Groups	21.270	
Collaborating and Sharing Digital Data for Teaching Learning	Between Groups	15.178	.538@
	Within Groups	28.211	
Digital Competence Score	**Between Groups**	**669.246**	**.837@**
	Within Groups	**799.926**	

Note: Table value for (4,395) df at 0.05 level =2.39

@ indicates not significant at 0.05 level and * indicates significant at 0.05 level

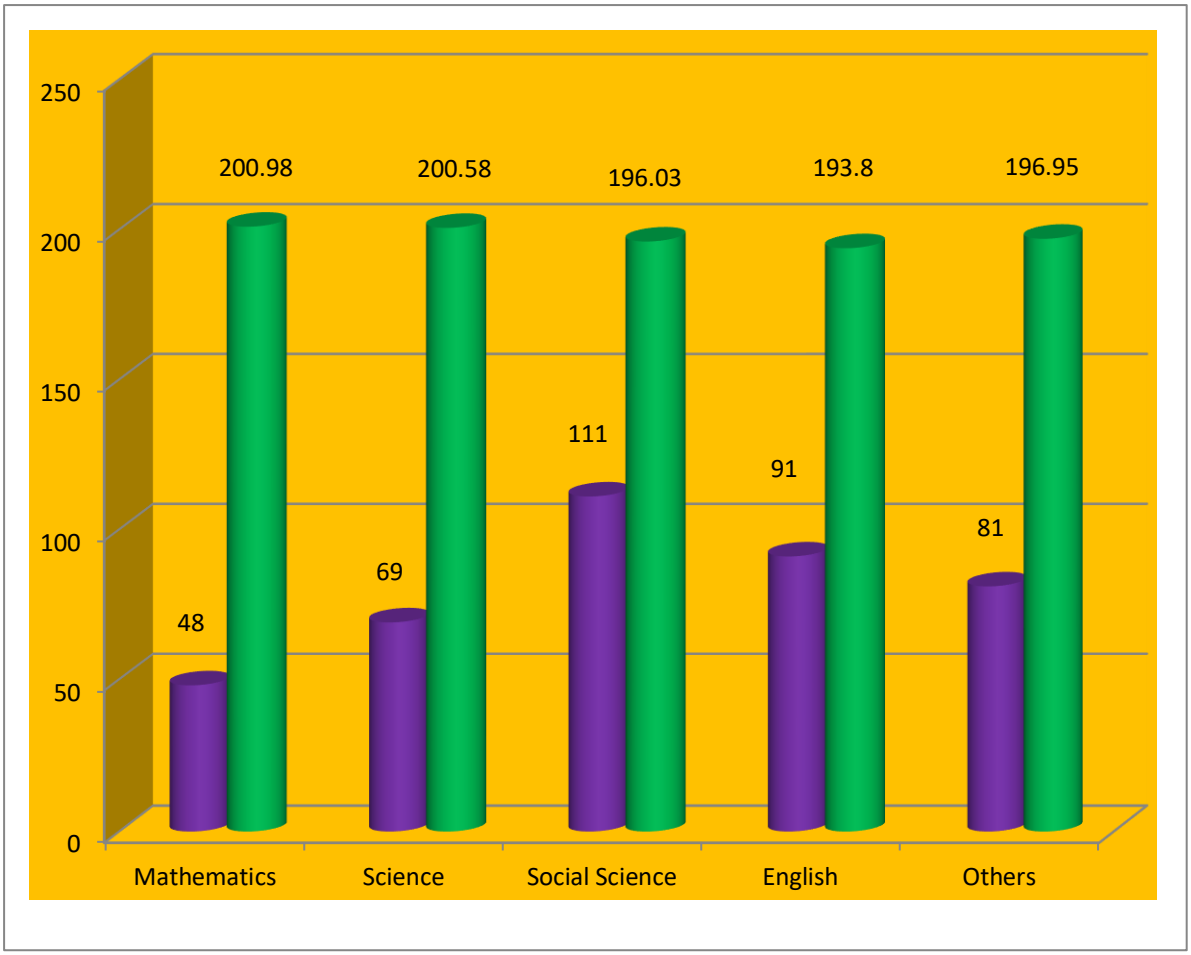

Figure No. 4.7: Digital Competence Scores among School Teachers with reference to Subject Taught

From the **Table No. 4.11,** the first dimension of knowledge of digital practices it can be observed that the mean scores of Mathematics and Science is 48.21 and 47.94 respectively, Social science and English mean scores is 46.86 and 44.41 each. Lastly the mean scores of other category is47.05. Thus it can be concluded that the school teachers teaching Mathematics subject have higher knowledge of digital practices than other subject school teachers. The standard deviation (SD) of Mathematics and Science is 7.688 and 7.067, Social science and English is 8.446 and 8.959, and SD of other category is 8.959.

The second dimension expertise in using digital technology for teaching learning it can be observed that the mean scores of Mathematics and Science is 48.42 and 48.99 respectively, Social science and English mean scores is 47.91and 47.80 each. Lastly the mean scores of other category is48.15. Thus it can be concluded that the school teachers teaching Science subject have higher expertise in using digital technology for teaching learning than school teachers who are teaching other subjects. The standard deviation (SD) of Mathematics

and Science is 7.163 and 5.728, Social science and English is 7.625 and 6.771, and SD of other category is 7.780.

Thirdly the dimension of evaluating and authorizing online information it can be observed that the mean scores of the mean scores of Mathematics and Science is 38.92 and 38.35 respectively, Social science and English mean scores is 37.99 and 37.33 each. Lastly the mean scores of other category is 38.54. Thus it can be concluded that the school teachers teaching Mathematics subject scored higher in evaluating and authorizing online information. The standard deviation (SD) of Mathematics and Science is 7.151 and 5.708, Social science and English is 6.469 and 5.806, and SD of other category is 6.475.

Fourthly, the dimension of managing and communicating digital data it can be observed that the mean scores of Mathematics and Science is 32.06 and 32.17 respectively, Social science and English mean scores is 30.81and 30.98 each. Lastly the mean scores of other category is30.67. Thus it can be concluded that the school teachers teaching Science subject scored higher in managing and communicating digital data than school teachers teaching other subject. The standard deviation (SD) of Mathematics and Science is 4.970 and 4.158, Social science and English is 4.782 and 4.315, and SD of other category is 4.840.

Fifthly, the dimension of collaborating and sharing digital data for teaching learning it can be observed that the mean scores of Mathematics and Science is 33.38 and 33.13 respectively, Social science and English mean scores is 32.45 and 33.29 each. Lastly the mean scores of other category is32.54. Thus it can be concluded that the school teachers teaching Mathematics subject scored higher in collaborating and sharing digital data for teaching learning than school teachers teaching other subject. The standard deviation (SD) of Mathematics and Science is 4.711and 3.391, Social science and English is 4.871 and 7.118, and SD of other category is 5.182.

Lastly, from **Table No. 4.11 and Figure No. 4.7** overall data shows the mean scores of digital competence with respect to subject taught i.e the mean scores of Mathematics and Science is 200.98 and 200.58 respectively, Social science and English mean scores is 196.03 and 193.80 each. Lastly the mean scores of other category is 196.95. Thus it can be concluded that the school teachers teaching Mathematics subject has higher digital competence than school teachers teaching other subject. The standard deviation (SD) of Mathematics and Science is 29.057 and 23.900, Social science and English is 29.055 and 28.128, and SD of other category is 30.286.

The above **Table No. 4.12** shows that the calculated value of F is .837 which is lower than the table value of 2.39 at 0.05 level of significance with (4,395) df and hence we accept the null hypothesis, "**there is no significant difference in digital competence scores among school teachers with reference to subject taught**". We may therefore, conclude that there is no significant difference to digital competence scores among school teachers with reference to subject taught in Dimapur District. The results also depicts that teachers teaching mathematics subject have higher Digital Competence than teachers teaching other subject the probable reason may be because mathematics subject is mostly considered as a dull and difficult subject to many students therefore, the teachers may be using various digital tools in order to motivate and arouse the interest of the students in this particular subject which have resulted in higher digital competence among the school teachers.

CHAPTER V

SUMMARY, MAJOR FINDINGS AND DISCUSSION, EDUCATIONAL IMPLICATIONS, SUGGESTIONS FOR FURTHER RESEARCH AND CONCLUSION

5.1 SUMMARY

5.1.1 INTRODUCTION

India has emerged as a global leader and a strong nation at the turn of this century. Education is the key to the task of nation building as well as to provide requisite knowledge and skills required for sustained growth of the economy and to ensure overall progress. The Indian education system recognizes the role of education in instilling the values of secularism, egalitarianism, respect for democratic traditions and civil liberties and quest for justice. It aims at creating citizens equipped with necessary knowledge, skills and values to build a inclusive, just and progressive society.

(Jha & Shenoy, 2016) Printing press changed the world of education forever. Six centuries later we are undergoing another transformation and this time everything is going digital. Leading this second wave of technology backed empowerment; Educomp has taken education from the paper to the pixel. As a pioneer in bringing digital education to the Indian classroom, Educomp has brought about a radical change in the traditional ways of teaching with its exemplary innovations in the digital space. The first of its kind in the world, it offers a bouquet of education solutions that comprehensively assist schools to leap frog towards an enhanced paradigm of teaching and learning.

5.1.2 RATIONALE OF THE STUDY

As stated by (Prensky, 2001) education is one of the largest problems facing by digital world because our educators are digital immigrants whereas our students are digital natives; this digital generation gap has created a digital divide between teachers and learners. The teachers are struggling to teach a generation that has an increased exposure to technology, which has altered their thinking style, way of working along with the way of interaction and responding to digital devices. Therefore, to meet the specific learning needs of this generation, teachers need to acquire skills and abilities to integrate technology not only in the classroom not but also in their routine life. Although, it is quite a difficult task for digital immigrants' teachers but it is equally important for them to understand the utility of these

digital tools in today's digital age of information and knowledge explosion. Since exposure to technology is still in its nascent stage in India. Teachers working in Indian education system have to manage the technologies and facilities available for effective teaching such as Virtual laboratories, MOOC, e-learning resources from NPTEL, INFLIBNET, SWAYAM and other open educational resources, mobile education, etc.

Teachers being the pivot in the teaching- learning process, requires the knowledge of Information and Communication Technology (ICT) and skills to use it in teaching and learning in today's classroom. Today the role of teachers has changed and continues to change from being an instructor to becoming a constructor, facilitator & creator of learning environment along with this they need to think critically & creatively to analyse available information along with their own experience. To accomplish this, they also need to be digitally competent which assist them to learn about, communicate with, understand one another, recognize & handle emotions, influence their societal values, improve interpersonal relationships and working in collaboration with others. It seems that the issue of digital competence, so far, has not been very relevant in research concerning higher secondary school teachers. Thus, the researcher has undertaken the present study to assess the level of Digital Competence required for school teachers.

5.1.3 STATEMENT OF THE PROBLEM

The present study is designed to study the Digital Competence among School Teachers.

The present study entitled **"DIGITAL COMPETENCE AMONG SCHOOL TEACHERS IN DIMAPUR DISTRICT".**

5.1.4 OPERATIONAL DEFINITIONS OF THE KEY TERMS

The operational definition of the term used in stating the problems are as follows:

(i) Digital Competence: In the present study, Digital competence is the competence of teachers in using digital tools and techniques for enhancing the effectiveness of their teaching learning processes.

(ii) School teacher: A teacher is someone who teaches in a school. In the present study the teacher refers to individuals working/ teaching in government and private schools in Dimapur.

5.1.5 VARIABLES OF THE STUDY

Following are the dependent and independent variable for the present study:

Dependent variable: Digital Competence

Independent variable: Gender, Management, Age, Educational Qualification, Work Experience, Subject Taught.

5.1.6 OBJECTIVES OF THE STUDY

1. To evaluate the level of digital competence scores among school teachers of Dimapur District.
2. To study the difference of digital competence scores among school teachers with respect to Gender, Management, Different Age Groups, Educational Qualification, Work Experience.

5.1.7 HYPOTHESES OF THE STUDY

1. There is no significant difference in the level of digital competence scores among school teachers in Dimapur.
2. There is no significant difference between male and female school teachers towards digital competence scores.
3. There is no significant difference between government and private school teachers towards digital competence scores.
4. There is no significant difference in digital competence scores among school teachers with reference to different age groups.
5. There is no significant difference in digital competence scores among school teachers in Dimapur with reference to educational qualification.
6. There is no significant difference in digital competence scores among school teachers in Dimapur with reference to work experience.
7. There is no significant difference in digital competence scores among school teachers in Dimapur with reference to subject taught.

5.1.8 DELIMITATIONS

Due to time constrain the present study will be delimited to Dimapur District only. The study has been delimited only to high schools and higher secondary schools. To test the level of significance the investigator has delimited to 0.5 level of significance only.

5.1.9 METHODOLOGY

The present study has been conducted by using 'Descriptive survey method'

5.1.10 POPULATION

The present study intends to find out the Digital Competence among School Teachers in Dimapur District. Hence, all teachers working in high schools and higher secondary schools of both government and private schools in Dimapur District will be the target population of the present study.

5.1.11 SAMPLE

For the present research, Multi Stage Random Sampling Technique was adopted in order to select the school teachers of both government and private schools in Dimapur District. At the first stage management of the school i.e government and private schools were selected altogether 15 private schools and 12 government schools were undertaken for the sample and second stage gender of the teacher's i.e male and female teacher's were included for the study.

In total a represented sample of 400 school teachers which comprise of 128 male and 272 female school teachers were the sample subjects.

5.1.12 DESCRIPTION OF THE TOOLS

The present objective of the study is to evaluate the Digital Competence among School Teachers in Dimapur District. The tool used for the study was the –

Digital Competence Scale for Teachers (DCST) developed and standardized by Ramkrishna (2017) which was adopted and used by the researcher**.** The investigator constructed a personal data sheet which consisted of -Name of the teacher, Name of the School, Gender, Age Group, Educational Qualification, Teaching Experience and Subject Taught.

5. 2 MAJOR FINDINGS OF OBJECTIVE 1

1. The sample of 400 respondents were divided into the categories of Extreme Poor Digital Competence, Poor Digital Competence, Below Average Digital Competence, Average/ Moderate Digital Competence, Above Average Digital Competence, High Digital Competence and Extremely High Digital Competence based on the manual of Digital Competence Scale developed by Ram Krishna.

It was found that out of 400 respondents, 63.25% i.e majority teachers fall under the category of High Digital Competence. Hence, this implies that there is high Digital Competence among the school teachers in Dimapur District. This may be attributed to many factors like because of the well qualified and trained teachers in almost all schools in Dimapur District.

2. The results show that there is a significant difference in the level of Digital Competence among School Teachers of Dimapur District.

5.2.1 MAJOR FINDINGS OF OBJECTIVE 2

Gender: It was found out that the mean scores of male school teachers is 202.41 with a standard deviation (SD) of 29.180 and the mean scores of female teachers is 194.58 with a standard deviation of 27.516. This indicates the difference of mean score of 7.83 which is in favour of male teachers.

The results also shown that digital competence of male teacher's was found to be significantly higher as compared to the female teachers. The reason may be because of their interest mostly males are more inclined towards technology and that this fascinates them to be more digital literate than the females.

Types of School: The schools were categorized as government and private schools in the study. It was observed that mean scores of digital competence of government school teachers is 187.98 with a standard deviation (SD) of 26.263 and the mean scores of private teachers is 204.92 with a standard deviation (SD) of 27.617. This indicates the difference of mean score of 16.94 which is in favour of private school teachers.

It is evident that there is a significant difference in digital competence between the government school teachers and private school teachers. Thus the results revealed that private school teachers have higher digital competence. This may be due to better awareness and better infrastructure along with regular supervision in private schools as compared to the government schools.

Different Age Groups: The age groups of school teachers is categorized in five groups i.e Below 25 years, 25 years to 30 years, 31 years to 35 years, & 36 years and above. It can be revealed from the results that the mean scores of digital competence of age group below 25 years is 205.00 with standard deviation (SD) 26.827, and the mean scores of age group 26 years to 30 years is 206.06 with standard deviation (SD) of 29.355, and the mean scores of

age group 31 years to 35 years is 197.31 with standard deviation (SD) 24.696 and the mean scores of 36 years and above age group is 191.74 with standard deviation (SD) 28.950.

It was observed that there is a significant difference among the school teachers with reference to different age groups such as age group Below 25 years, 26 years to 30 years, 31 years to35 years and 36 years and above. Thus, it is evident from the study that the age group 26 years to 30 years was found to have higher Digital Competence as compared to other age group category as the reason may be because this age group consist of young and fresh graduates who are mostly internet savvy than those school teachers who are older adults.

Educational Qualification: The educational qualification is categorized in five groups namely 10+2+D.El.Ed, UG Degree + D. El. Ed, UG Degree + B. Ed, PG Degree + B.Ed. It is seen from the results that the mean scores of digital competence with respect to different educational qualifications i.e 10+2+D.El.Ed is 179.39 with standard deviation (SD) and that the mean scores of UG Degree + D. El. Ed is 194.19 with standard deviation (SD) 29.871, the mean scores of UG Degree + B. Ed is 194.64 with standard deviation (SD) 22.361 and the mean scores of PG Degree + B. Ed is 196.42 with standard deviation (SD) 28.101and lastly the mean scores of other educational qualification is 201.01 with standard deviation (SD) is 30.015.

It is thus evident that there is a significant difference in Digital Competence with reference to different educational qualifications which has been categorised as 10+2+D.El.Ed, U.G Degree + D. El. Ed, U.G Degree+ B. Ed, P.G Degree + B. Ed and Others. Hence, it was revealed that the category other educational qualification which include school teachers who does not possess any teacher education qualification and those belonging to engineering background have higher digital competence.

Work Experience: The work experience is categorized in five groups i.e less than 2 Years, 2 years to 5 years, 6 years to 10, 11 years and above. The findings reveal that the mean scores of less than 2 Years is 205.43 with standard deviation (SD) of 31.349 and the mean scores of 2 years to 5 years is 202.12 with standard deviation (SD) is 25.726 respectively, also the mean scores of 6 years to 10 years is 195.95 with standard deviation (SD) 26.257 and the mean scores of 11 years and above is 192.15 with standard deviation (SD) 30.064. Lastly the mean scores of other category is 200.33 with standard deviation (SD) is 40.464.

It was found that there is a significant difference among the school teachers with reference to work experience with Less than 2 years, 2 years to 5 years, 6 years to 10 years, 11 years and above and Others, the school teachers having less than 2 years was found to have higher Digital Competence than with those having more work experience. This may be because those school teachers comprise of young and fresh graduates who are experts in ICT.

Subject Taught: The Subject taught is categorized in five groups such as Mathematics, Science, Social Science, and English. The results reveal the mean scores of Mathematics subject teachers as 200.98 with standard deviation (SD) of 29.057 and the mean scores of Science subject teachers is 200.58 with standard deviation (SD) of 23.900 respectively, and the mean scores of Social Science subject teachers is 196.03 with standard deviation (SD) of 29.055 and that the mean scores of English subject teacher is 193.80 with standard deviation (SD) of 28.128 and lastly the mean scores of other category is 196.95 with standard deviation (SD) of 30.286.

Hence, from the result mathematics subject school teachers are found to have higher Digital Competence as compared to other subject teachers namely Mathematics, Science, Social Science, English and Other subject teachers. The probable reason may be because mathematics subject is mostly considered as a dull and difficult subject to many students therefore the teacher may be using digital tools in order to arouse the interest of the students in this subject which may have resulted in higher digital competence among the school teachers.

5.3 DISCUSSION

The present study indicates that 63.25% i.e majority teachers fall under the category of High Digital Competence. Hence, this implies that there is high Digital Competence among the school teachers in Dimapur District. This result is in consonance with the study of Engen et al. (2014) which revealed that student teachers perceived digital competence was good. But it is in contradiction to the findings of Khateeb (2017), and Quaicoe & Pata (2020) which reveals that majority of the teachers are not adequately digitally competent according to the level and standards required to enable them to be a good digital teachers of the twenty-first century. It has also been reported that relatively small number of schools were engaged in teacher digital activities (TDA).

As the present study also reveals that digital competence of male school teachers are significantly more digitally competent as compared to the female counterparts. The possible

reason may be because of their interest towards technology mostly males are more inclined towards technology and that this fascinates them to be more digital literate than the females. These findings agree with the findings of Pratap & Singh (2018), about the majority of the respondents were male. Previous study conducted by Silva, Usar & Cantabrana (2019) also justified that the male student teachers achieved a higher teachers digital competence level when compared with females. In contrary to these findings, results reported by Kuzminska et al. (2018) reveal that there was no defined significant difference on gender.

The study also reveals that there is a significant difference in digital competence between the government school teachers and private school teachers. Thus, private school teachers have higher digital competence when compared to teachers working in government schools. This may be due to better awareness and better infrastructure along with regular supervision in private schools as compared to the government schools.

Through this study, the researcher also identified significant differences among the school teachers with regard to different age groups such as age group Below 25 years, 26 years to 30 years, 31 years to35 years and 36 years and above. Thus, it is evident from the study that the age group 26 years to 30 years was found to have higher Digital Competence as compared to other age group category as the reason may be because this age group consist of young and fresh graduates who are mostly internet savvy than those school teachers who are older adults. These finding is in contrary to Kuzminska et al. (2018) where the results show no significant difference with regard to age.

It is thus evident that there is a significant difference in Digital Competence with regard to different educational qualifications which has been categorised as 10+2+D.El.Ed, U.G Degree + D. El. Ed, U.G Degree+ B. Ed, P.G Degree + B. Ed and Others. It was revealed that the category other educational qualification which include school teachers who does not possess any teacher education qualification and those belonging to engineering background have higher digital competence.

Another findings of the present study observed that there is a significant difference among the school teachers with regard to work experience. Among those with Less than 2 years, 2 years to 5 years, 6 years to 10 years, 11 years and above and Others , the school teachers having less than 2 years was found to have higher Digital Competence than with those having more work experience. This may be because those school teachers comprise of young and fresh graduates who are experts in ICT. Contradictory results have however, also been reported by Benali, Kaddouri, & Azzimani (2018) where the findings reveal that

teachers with higher level of digital teaching confidence are those with more years of experience.

Through this study, the researcher also identified significant differences among school teachers with reference to their subject taught. Hence, mathematics subject school teachers are found to have higher Digital Competence as compared to other subject teachers namely Mathematics, Science, Social Science, English and Other subject teachers. The probable reason may be because mathematics subject is mostly considered as a dull and difficult subject to many students therefore the teacher may be using digital tools in order to arouse the interest of the students in this subject which may have resulted in higher digital competence among the school teachers. These findings is in contrary to the findings of Kozuh, Maksimovic, & Zajie (2021) which shows that science and technology teachers apply digital tools while teaching more frequently that other subject teachers.

5.4 EDUCATIONAL IMPLICATIONS OF THE STUDY

Any research will be useful and significant to the extent it is fruitful in adapting to the current educational change and providing insight in leading the concerned field towards higher levels of performance. Attempts have been made in the present study that is to study the digital competence among school teachers of Dimapur District. The present study is just the beginning in this particular area and is an attempt to fill this research gaps. The investigator has laid down some possible educational implications for further improvement to enhance the digital skills among the school teachers. After analysing and interpreting the results of the study, the investigator is forwarding the following points based on the findings with the hope that with this implementation, teaching-learning could become more lively and joyful. The present study provides some valuable inputs to the educational system and in the teaching learning process so far as the quality of teachers is concerned.

Following are the main implications of this study:

1. The results indicate that those teachers with higher digital competence which comprise of young and fresh graduates tend to perform better and more effective than those with lower levels of digital competence. Therefore, adequate measures should be taken by the schools, directorates of school education and the government at large to provide regular trainings in digital competence to the school teachers working both in government as well as private school.

2. This finding may help the teachers and school headmasters/ principal of schools to be more conscious of their responsibilities and thereby improving their ICT facilities in the schools and classrooms. This may also help the administrators to facilitate more supportive and enriching training to the school teachers in order to improve their skills of handling digital tools.

3. The schools should provide adequate teacher training for the teachers in computer application courses such as diploma in soft ware application in order to update with modern technological applications in the teaching learning process.

4. The smart teaching tools such as projectors should be installed in the classroom for effective teaching learning.

5. Computer application course should also be considered as one factor while recruiting the teachers in the school.

6. Teachers should improve their proficiency in handling digital technology and integrate digitalisation while teaching the content to make students more attentive and understand the subject matter more easily.

7. More often teachers should cultivate the urge to use online teaching so as to motivate and appreciate the importance of development of ICT in the teaching learning process.

8. Acquiring digital competence will not only be helpful for teachers but also it will empower them to guide their students more effectively for online learning and referencing for better academic success.

9. The importance of digital empowerment and ICT training of school teachers for quality education should be realised by all the concerned stake holders so as to adapt to digitalisation which is the urgency in our education system.

10. This study is very much essential as digital competences among school teachers is the new trend in the education system for developing professional efficiency in teaching as well as provide quality education to the students.

11. Special efforts should be made in order to develop digital competence awareness among the school teachers.

12. The School Education Department should take the initiative to provide in-service training courses for teachers in secondary schools with an effort to improve teachers digital competency skills.

5.5 SUGGESTIONS FOR FURTHER RESEARCH

After undertaking a systematic study on "Digital Competence among School Teachers of Dimapur District," the investigator felt the need for conducting further research interrelated with Digital Competence. Given below, the investigator has pen down possible suggestion for further research:

1. As this study was delimited to teachers of secondary schools, it can be further extended to teachers at college level or teacher educators, as the need for digital competence is more urgent.

2. The present study being conducted on teachers of Dimapur District as sample, its comprehensiveness is limited and hence its conclusions cannot be generalized as such. Hence, a comprehensive survey taking larger samples extended to other district as well may be undertaken to make the results generalized.

3. Studies can be undertaken on other similar variables taking sample from the schools affiliated to different school boards such as CBSE, ICSE and other state school boards.

4. The present study is confined itself to urban area of school teachers only, whereas in the future studies can be conducted by taking samples from rural areas so as to compare the level of digital competence. Hence, study can be conducted on rural areas school teachers as samples.

5. Limited study has been conducted in India and Nagaland in particular on the area digital competence. Hence, similar topics can be taken up time and again in future as it will help the stake holders to know the present scenario of the status of teachers in the county.

6. It is a felt need to take up a study on infrastructural status of ICT in both government and private secondary schools in Nagaland.

7. It will be worth-while to take up a study on the attitudes held by teachers towards the use of ICT in teaching learning process.

8. A research on the current problems faced by the teachers in online teaching and learning in the state and measure to solve this problem can be undertaken.

9. A comparative study can be done on the traditional teaching and modern teaching practices and their effects on student's achievement can be conducted.

5.6 CONCLUSION

Any research is useful and significant to the extent it is fruitful in solving current educational problems and providing insight in leading the concerned field towards higher levels of performance. The study was undertaken with the aim to investigate the level of Digital Competence among School Teachers. The sample of 400 teachers was drawn from the school teachers working both in Government and Private Schools in Dimapur District.

A glance at the findings of the result reveals that there is high Digital Competence among the school teachers in Dimapur District. The result also shown that Digital Competence of male teacher's was found to be significantly higher as compared to the female teachers. It is evident from the study that the age group 26 years to 30 years was found to have higher Digital Competence as compared to other age group category. Another finding also revealed that there is a significant difference in Digital Competence with reference to different educational qualifications. Hence, it also reveals that the category other educational qualification which include school teachers who does not possess any teacher education qualification and those belonging to engineering background have higher Digital Competence. Another finding also reveals that there is a significant difference among the school teachers with reference to work experience. The school teachers having less than 2 years was found to have higher Digital Competence than with those having more work experience. Lastly, from the result mathematics subject school teachers are found to have higher Digital Competence as compared to other subject teachers namely Mathematics, Science, Social Science, English and Other subject teachers.

The present study provides some valuable inputs to the educational system so far as the quality of teachers is concerned. This study has significant educational implications in context of teacher Digital Competence and some of its crucial determinants. In the present world of globalization of economies and digitalization of education, it is all the more significant in indicating the urgency of enhancing teacher's digital competence so as to make them capable of inspiring the new generation through their informed guidance and decisions in educational practices.

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E- Resources

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https://www.un.org/en/un75/impact-digital-technologies

APPENDIX-I: PLAGIARISM REPORT

Curiginal

Document Information

Analyzed document	YANGERMENLA JAMIR-MPHIL-DISSERTATION-DIGITAL COMPETENCE -25-11-2021.doc (D119825161)
Submitted	2021-11-25T09:14:00.0000000
Submitted by	MURATHOTI RAJENDRA NATH BABU
Submitter email	mrajendranathbabu@nagalanduniversity.ac.in
Similarity	5%
Analysis address	mrajendranathbabu.naga@analysis.urkund.com

Sources included in the report

W	URL: https://censusindia.gov.in/2011census/dchb/1305_PART_B_DCHB_DIMAPUR.pdf Fetched: 2021-11-25T09:16:00.0000000	2
W	URL: https://dimapur.nic.in/about-district/ Fetched: 2021-11-25T09:16:00.0000000	1
W	URL: https://dimapur.nic.in/history/ Fetched: 2021-11-25T09:16:00.0000000	1
W	URL: https://nbsenl.edu.in/storage/cms/general-info/3.pdf Fetched: 2021-11-25T09:16:00.0000000	1
W	URL: https://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2006:394:0010:0018:en:PDF Fetched: 2021-11-25T09:16:00.0000000	2

APPENDIX –II : SAMPLE PERMISSION LETTER

NAGALAND UNIVERSITY

DEPARTMENT OF TEACHER EDUCATON KOHIMA CAMPUS,

MERIEMA

Date:

To,

The Principal

_____

SUB: NU-DTE-M.PHL-DISSERTATON- DATA COLLECTON PERMISSION

Respected Sir/Madam

My name is **Yangermenla Jamir** and I am currently pursuing my M. Phil from Nagaland University, Kohima Campus. I would like to inform you that I am doing my dissertation on the topic entitled **"Digital Competence among School Teachers in Dimapur District"** under the guidance of Dr. M. Rajendra Nath Babu Department of Teacher Education Nagaland University.

As subject cited above, I would like to seek your permission to collect data among your teachers. I assure you that the data collect will remain confidential and will be used for academic purposes only.

Your kind approval will be of great help for the success of this research study.

Thanking you in anticipation.

Yours faithfully,

Yangermenla Jamir
Roll No.-03/2020
M. Phil Research Scholar
Dept of Teacher Education
Nagaland University

APPENDIX- III: PERSONAL DATA SHEET

Sl. No	Questions	Statement
1	Name of the school	
2	Gender	Male Female
3	Age	Below 25 years 25 years to 30 years 31 years to 35 years 36 years and above
4	Management	Government Private
5	Educational Qualification	10+2+ D.El.Ed UG+D.EL.ED UG+B.ED PG+B.ED OTHER
6	Work Experience	Less than 2 years 2 years to 5 years 6 years to 10 years 11 years and above
7	Subject Taught	Mathematics Science Social science English Others

APPENDIX- IV: TOOL

TEACHERS' DIGITAL COMPETENCE SCALE

Sl.No.	Statement	Strongly Agree (5)	Agree (4)	Cannot Say/ Undecided (3)	Disagree (2)	Strongly Disagree (1)
1	I know how to connect various hardware components of a computer					
2	I know how to create files and folders					
3	I know how to move files between drives					
4	I know how to run CD/DVD efficiently.					
5	I know how to secure my digital data.					
6	I know how to take prints from online sources or from the data in pen-drive.					
7	I generally create and use power-point presentations effectively for my classes.					
8	I normally use word-editing options, e.g. bold, italics, center, fontetc, effectively.					
9	I save documents in various file formats.					
10	I send and receive e-mail messages effectively.					
11	I can communicate online with other students for homework/assignment.					
12	I can easily share information by using formal networking spaces.					
13	I can easily attach files to outgoing e-mails.					
14	I can organize and share information online and on social networking sites.					

15	I regularly visit educational sites like NCERT,BSEB,CBSE etc.					
16	I can and do collaborate with my colleagues and friends through mobiles and internet.					
17	I can consult experts on the internet using instant messaging tools (whatsapp, facebook, yahoo, msn, Skype etc.)					
18	I can cite online source/reference properly for my classes.					
19	I can contact experts and clarify my doubts in my subject easily					
20	I can create and publish content in multimedia formats to communicate subject-related opinions and ideas.					
21	I can create relevant online information for my students and share it with colleagues.					
22	I can easily get the most relevant information from and within several similar documents.					
23	I can efficiently record, edit and share a word file or educational video.					
24	I can have quick and effective online interaction with my students.					
25	I can save search results properly for my subject.					
26	I can save text and images from web pages efficiently.					
27	I can use appropriate online content for different levels of my students.					
28	I can use different sharing application like shareit, xender, etc, for educational purposes.					

29	I can use online sites for ordering relevant educational materials like books, models, charts etc.					
30	I can use virtual laboratory and e-books from NCERT and CBSE sites.					
31	I distinguish easily between reliable and unreliable online information available.					
32	I distinguish effectively more useful information from less useful or junk data available online.					
33	I easily download needed files from internet in my subject.					
34	I generally introduce animation into my slides.					
35	I generally retrieve relevant information from an online source for my subject.					
36	I generally work effectively with MS-Excel for my subject and classes.					
37	I guide my students in effective use of mobiles and internet sources for learning material in my subject.					
38	I guide my students in using only authentic websites for their references.					
39	I guide students for developing their proficiency in referencing and filling online etc.					
40	I know how to connect and use LCD projector					
41	I know how to use a right tool to search, use or create required information from internet.					
42	I know how to use a scanner to scan images.					
43	I know how to use web cameras for online communication.					

44	I know how to use web cameras to capture images.					
45	I know the ethical practices to use information available online.					
46	I motivate my students and colleagues for joining online courses on MOOC and swayam platforms					
47	I use a good technique for find the most relevant results of online searches					
48	I use mostly the PDF files for my teaching learning interactions with due acknowledgement.					
49	I use social networking sites for sharing news/ progress with my students					
50	I use web search engines (Google, yahoo, search as, web-crawler, my websearch etc) very effectively.					

APPENDIX-V: LIST OF SAMPLE COLLECTED INSTITUITIONS

SL.NO	NAME OF THE PRIVATE INSTITUTION	NUMBER OF SAMPLE
1	Ram Janaki Hr. Secondary School	12
2	SD Jain Hr.Secondary School	15
3	Pranab Vidyapith Hr. Secondary School	22
4	Cornerstone Hr. Secondary School	17
5	Little Star Hr. Secondary School	20
6	Lima Aier Hr. Secondary School	11
7	Christian Hr. Secondary School	27
8	Vision Home Hr. Secondary School	11
9	Green Wood Hr. Secondary School	10
10	Nazereth high school	10
11	Maple Tree Hr. Secondary School	6
12	Hope Academy Hr. Secondary School	5
13.	St.John Hr. Secondary School	10
14.	Vidhya Bhavan Hr. Sec School	17
15.	Hollotoli Hr. Secondary School	12
Total		**215**

SL.NO	NAME OF THE GOVERNMENT INSTITUTION	NUMBER OF SAMPLE
1	Government Hr. Secondary School Chumukedima	19
2	Government Hr. Secondary School Nagarjan	18
3	Government Hr. Secondary School Nuiland	20
4	Government High School Kushiabill	15
5	Government High School Sarbura	15
6	Government High School Naharbari	17
7	Government High School Dipupahar B	19
8	Government High School Lengrijan	14
9	Government High School Burma Camp	16
10	Government High School Naga United	17
12	Government High School Tahekhu	15
Total		**185**

Certificate no: KVOSNG-CE000012

MODERN INSTITUTE OF TEACHER EDUCATION, KOHIMA

One Day National Conference

On

Fostering Interdisciplinary Experiences through Blended Learning

Certificate of Paper Presentation

This is to certify that *Ms Yangermenla Jamir, M Phil Nagaland University,* has presented a paper entitled *A Study on the B.Ed Student Teachers attitude towards e-learning in Dimapur, District.* in the One Day National Conference on Fostering Interdisciplinary Experiences through Blended Learning held on 22-11-2021 organised by the MITE, Kohima.

Mrs. Niutoli L Yeptho
Convenor

Dr. Kate Dandesh Kumar
Principal

Sl.No	Gender	Managem	Age	Education	Work exp	Subject ta		
							1	2
1	1	1	3	5	2	1	4	5
2	1	1	4	5	4	4	2	4
3	2	1	4	5	4	3	3	2
4	2	1	2	5	2	4	4	5
5	2	1	3	5	2	1	4	5
6	2	1	3	3	2	4	5	5
7	2	1	3	2	3	5	4	4
8	2	1	4	4	3	5	2	5
9	2	1	4	5	4	2	4	4
10	2	1	4	4	4	2	3	4
11	2	1	4	4	2	3	1	2
12	2	1	3	5	4	3	2	5
13	2	1	3	2	5	4	2	4
14	2	1	4	3	4	5	3	4
15	2	1	4	5	3	2	3	4
16	2	2	4	4	4	3	4	5
17	1	2	2	4	3	2	5	5
18	1	2	2	5	2	2	4	5
19	2	2	2	4	2	4	3	5
20	2	2	2	5	1	5	3	5
21	1	2	3	5	2	3	4	5
22	2	2	2	4	2	1	1	5
23	1	2	2	5	3	1	4	5
24	1	2	4	5	4	5	4	5
25	1	2	4	5	3	1	4	4
26	2	2	2	4	2	3	4	4
27	2	2	2	4	3	2	4	5
28	2	2	2	5	2	2	4	4
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32	2	2	4	3	4	5	4	4
33	1	2	4	5	4	2	4	4
34	2	2	3	5	3	4	4	4
35	2	2	3	5	2	4	2	4
36	2	2	3	5	3	4	2	5
37	2	2	3	5	3	2	4	4
38	1	2	4	5	4	2	4	4
39	1	2	4	5	4	2	4	5
40	1	2	3	5	3	2	4	4
41	2	2	4	4	4	4	4	4
42	2	2	2	4	2	4	4	4
43	1	2	4	5	4	2	4	5
44	1	2	4	5	4	4	2	2
45	1	2	4	5	4	1	3	4
46	1	2	4	4	4	1	4	2
47	1	2	4	4	4	3	3	4
48	1	2	4	5	4	2	3	3

49	1	2	4	4	4	1	2	5
50	1	2	4	5	4	2	2	2
51	2	2	3	5	4	4	4	5
52	1	2	3	5	2	3	2	4
53	1	2	2	5	2	2	5	5
54	1	2	1	5	1	2	4	5
55	2	2	2	4	2	4	5	5
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62	2	2	3	5	2	1	3	4
63	2	2	4	4	4	4	2	5
64	2	2	3	4	4	2	3	5
65	2	2	3	3	4	3	5	4
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Knowledge of Digital Practices								
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	Expertise in Using Digital teacnology for teaching							
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